

# Marine Review

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# Why Stop at Scrapping 200?



## These Ships are Not a Reserve-They are Junk

**B**Y NOW bids have been received for scrapping 200 ships. This is a good start on a policy steadily advocated by MARINE REVIEW. But why stop at scrapping 200? Are all of the remaining 1000, good ships?

Asked what effect scrapping of vessels would have in maintaining a sufficient reserve for national defense and for commercial purposes, Chairman O'Connor said on May 19:

*"In April of last year a committee of experts representing the war department, navy department, department of commerce, together with representatives of the shipping board and the Emergency Fleet Corp., after a survey of the government fleet, made to me the following report concerning this phase of the question, which corroborates my estimate of 400 vessels in operation; 400 in reserve, and 400 to be scrapped as useless:*

### A Surplus of 521 Vessels

| Entire Fleet                |     |
|-----------------------------|-----|
| Active and spot ships ..... | 360 |
| First reserve .....         | 187 |
| Second reserve .....        | 112 |
| Surplus .....               | 521 |

Total .....1180

"Under the conditions outlined above the following cargo vessels listed according to deadweight are in excess of the commercial needs and are not required in connection with the military services:

| Cargo Vessels                   |     |
|---------------------------------|-----|
| Vessels 10,000 and above.....   | 3   |
| Vessels 9000 to 10,000.....     | 27  |
| Vessels 8000 to 9000.....       | 55  |
| Vessels 7000 to 8000.....       | 5   |
| Under 7000 except "Lakers"....  | 129 |
| Vessels known as "Lakers" ..... | 302 |
| Total .....                     | 521 |

*"Under the assumed conditions this number of vessels represents a clear surplus which are not required for either the national or commercial needs of the country, which are expensive to maintain, which are continually deteriorating and which should, therefore, be disposed of as early as practicable under whatever general policy may be adopted."*

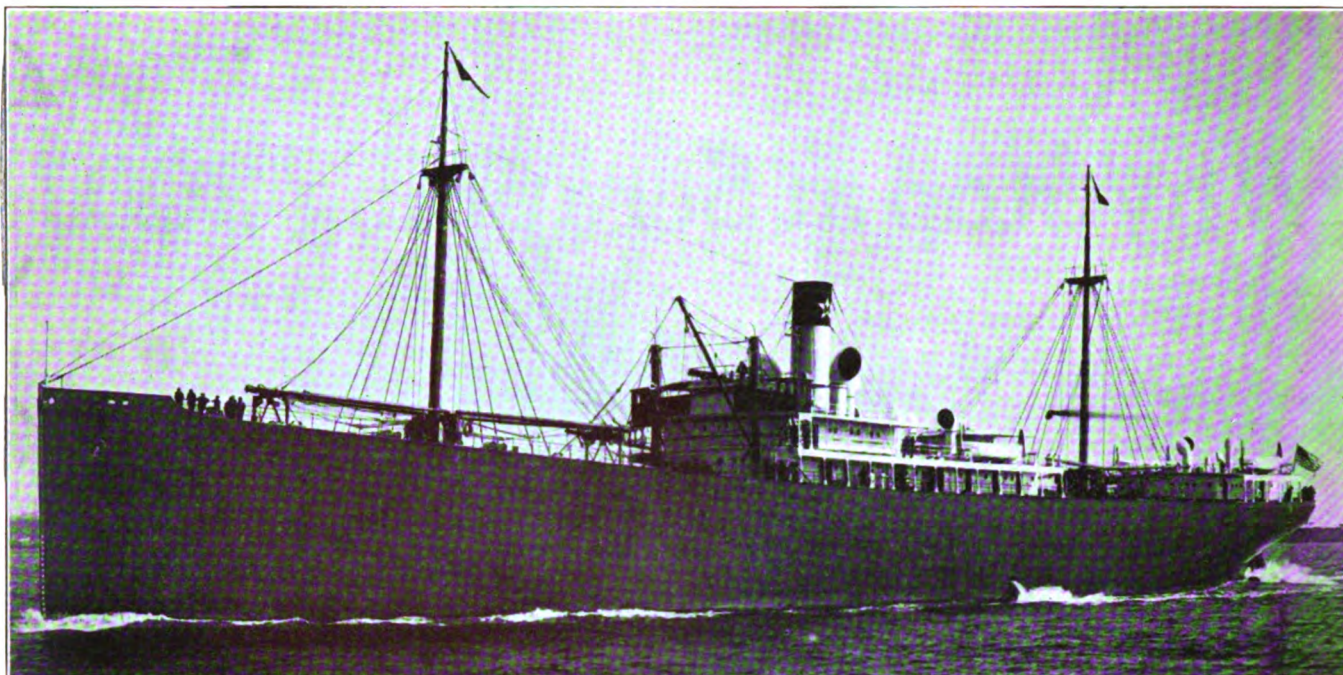
### Don't Leave the Job Half Done

It has been the consistent endeavor of this publication to point out the futility and colossal economic loss to continue government ownership and direct operation of a hurriedly designed, poorly constructed, and lopsided merchant fleet, built during the exigency of war for the sole purpose of providing bottoms of any kind that would float and move to take the place of ships lost.

The present chairman of the shipping board has shown commendable energy and decision in initiating action to partly relieve this situation by making a start in scrapping the surplus useless ships. He should however, stick to his guns and insist on getting rid at once of the remaining 321 ships which his own statement quoted above declares are a clear surplus and which cannot be absorbed either by the national or commercial needs of the country. Public opinion is clearly unanimous in this first step in solving our shipping problem.







New Southern Pacific Steamship Line's Freighter EL OCEANO on Her Trial Trip—Single Screw Steam Turbine Reduction Gear

# Express Freighter Runs Well

El Oceano Makes Nearly 15½ Knots on First Voyage—Turbines, Gear Reduction, Work Smoothly and Efficiently—Fine Cargo Handling Equipment

BY A. S. HEBBLE

*Superintending Engineer, Southern Pacific Steamship Lines*

**F**AST express freight services are maintained by the Southern Pacific Steamship Lines between New York and Gulf ports. The latest vessel added to maintain these services, the S. S. EL OCEANO, designed by the writer and constructed by the Federal Shipbuilding and Dry Dock Co., Kearny, N. J., has recently completed her first round trip in regular service between New York and Galveston, Texas. It is therefore possible to get a line on her performance. For the round voyage the speed averaged 15.45 knots. All the machinery equipment operated in an entirely satisfactory manner and the fuel and water consumptions were within the contract requirements.

The EL OCEANO's general dimensions and particulars are as follows:

|                                       | Feet   | Inches |
|---------------------------------------|--------|--------|
| Length overall .....                  | 433    | 0      |
| Length between perpendiculars .....   | 415    | 0      |
| Beam molded .....                     | 56     | 0      |
| Depth molded to hurricane deck.....   | 37     | 0      |
| Depth to main deck .....              | 28     | 3      |
| Mean draft loaded in sea water.....   | 26     | 0      |
| Gross tonnage .....                   | 6,767  |        |
| Net tonnage .....                     | 4,171  |        |
| Displacement in tons, draft 26 feet.. | 11,750 |        |

The vessel is a single screw express freight steamship, with straight stem and elliptical stern, with two steel pole masts. There are three com-

plete steel decks fore and aft with an orlop deck in addition in the forward hold.

## Cargo Handled Efficiently

To provide easy access to cargo spaces there are five large center line hatches and eight cargo ports on each side. The vessel is arranged to handle cargo quickly and in an economical manner. There are two tubular steel booms on the forward and after side of each mast, with a capacity of seven and one-half tons each, and in addition, two derrick posts with tubular steel booms of five tons capacity. Eight 8¼ x 8 inches and two 8¼ x 10 inches double cylinder single geared cargo winches are located at the hatches for handling cargo.

Steel deck houses are located on the hurricane deck to accommodate the vessel's crew, with the necessary arrangement of bath rooms, wash rooms, lavatories, storerooms, messroom, kitchen, pantry, and ice boxes. The pilot house and navigating bridge are located on the forward end of the upper amidship house. Accommodations for the captain, deck and engineer officers are large and

well ventilated and comfortably furnished. Steel hatch covers are fitted over all hatches on the hurricane deck to insure water-tightness and as a safeguard in controlling fires in the holds. All the life saving and fire fighting equipment required by the United States steamboat inspection service, has been provided, and in addition, the boiler room has been fitted with a Foamite firefoam fire extinguishing apparatus for extinguishing oil fires.

The vessel is propelled by a single screw driven by De Laval Steam Turbine Co.'s compound turbines through double reduction gear. The boilers are of Babcock & Wilcox small water tube type, and are oil fired. The vessel has a total deadweight carrying capacity, ready for sea, of 7900 gross tons on a 26 feet 0 inches mean draft in sea water. Of the total deadweight the cargo capacity is 6700 gross tons. Total cubic capacity is about 500,000 cubic feet.

A contract has been given to the Kingsbury Machine Works for furnishing 14 main thrust bearings for use on the shipping board diesel ships at a total price of \$39,200.



# Don't Let Shipbuilding Decay

## *National Welfare* Depends on Shipyards A Plan is Proposed To Protect Ship- building—Build up the Merchant Marine —Insure National Safety

BY F. P. PALEN

*Vice-President Newport News Shipbuilding & D. D. Co.*



CONGRESS should protect the shipbuilding industry so that the Standard Oil Co. and the United Fruit Co. will have their vessels built in the shipyards of the United States instead of in foreign yards, as they are doing at the present time. No criticism can be made of the action of the Standard Oil Co. and the United Fruit Co. in placing their contracts in foreign shipyards, as they are doing exactly what anyone would do under our present laws.

The quarrel is, therefore, with our laws and not with the steamship owners. Laws which cause American citizens to buy vessels from Krupp's when at the same time they do not buy machinery or steel from Krupp's are not just and fair to the shipbuilding industry of the United States. If the vessels ordered by Americans from foreign yards during the past two years had been built in the shipyards of this country, this work would have gone a long way towards keeping the shipyards going.

On the other hand, if congress does not provide protection for the industry, which will be sufficient to cause the vessels required by American owners to be built in the United States, it is impossible to see any hope for the industry. This is the view of a disinterested person, as the writer has no financial interest in any shipyard.

### Shipbuilding Should Be Protected

Congress may think that the machinery and steel industries are of more national importance than shipbuilding and therefore should be protected, but in time of war shipbuilding always has been more important and always will be, so it seems that as a matter of national defense as well as a matter of equity, equal pro-

tection should be given to this industry.

If the President and congress believe that shipbuilding should be protected so that American citizens can have vessels built in the shipyards of the United States at a cost as nearly as possible on a parity with the cost of building them in other countries, then the problem becomes very simple. There are many ways of protecting the shipbuilding industry to accomplish this result. American owners should be encouraged to build in the United States shipyards rather than forced to do so, and with this thought in mind the simplest and most direct method of protection will be the best.

To accomplish this purpose it is therefore recommended that an investment be made by the government in vessels for foreign trade equal to the excess cost of building vessels in the United States, and in return for this investment the United States retains certain rights in the vessels from which a direct benefit will result, as well as the indirect benefit resulting from maintaining the industry. In time of war, the United States has always paid excessive prices for ships, on account of its shipping policy. In fact, the United States spent, lost and wasted enough money on account of its shipping policy during the last war to protect its shipbuilding for the next one hundred years.

It is recognized of course that the United States has the right to commandeer vessels in time of war, but this right is of no value if there are no vessels under the American flag that are suitable for its purposes, as was the case during the Spanish War and the World War. We are approaching the time when the obsolete vessels must be replaced. The Standard

Oil vessels and the United Fruit Co. vessels, above referred to, will not fly the American flag, and therefore cannot be commandeered by the United States but can be commandeered by the nation whose flag they fly.

If the United States will invest wisely reasonable sums year by year in vessels operated by American citizens in the foreign trade, it will benefit and build up its shipyards and shipping and will make available vessels when needed, at reasonable prices.

These thoughts have been set forth in the form of a bill for presentation to Congress and it is suggested that the shipbuilding industry request the President and congress to provide protection sufficient to accomplish the results above outlined.

### Proposed Bill for Protection

"An act for protecting the shipbuilding industry of the United States of America.

"Be it enacted by the senate and house of representatives of the United States of America in congress assembled:

"Sec. 1. To provide vessels under the American flag that can be purchased or chartered at reasonable prices by the United States in time of war or national emergency; to provide for the purchase and charter of such vessels by the United States at reasonable prices; to provide for the replacement of vessels in the foreign trade as they become obsolete; to encourage citizens of the United States



to build vessels to meet the demands for the proper growth of our foreign trade, and to maintain a force of workmen skilled in the art of shipbuilding in the shipyards of the United States: It is declared the policy of the United States to encourage and aid its shipbuilding industry sufficiently to cause ships to be built in the shipyards of the United States for the foreign trade. To accomplish this end, the United States will acquire an interest in the vessels built under this act and will pay a portion of the cost of vessels so built.

"Sec. 2. That the government of the United States shall have the right in case of war or national emergency to purchase or charter any of the vessels built under this act upon the conditions and terms hereinafter set forth; that in the event a vessel built under the provisions of this act is owned or operated in violation of its terms or the flag changed during the period the United States has an interest therein, the vessel shall be subject to seizure and sale by the United States and the rights of the United States as to its interests therein shall take precedence over all mortgages, claims, liens, etc., against the vessel, and notice to this effect shall be recorded in the custom house at the vessel's hailing port and on the vessel's papers carried on board.

"Sec. 3. That vessels built under this act shall be owned by citizens of the United States as provided for in the merchant marine act of 1920; the vessels shall be of the most modern design, and shall be approved by the United States shipping board; the vessels so built shall not engage in the coastwise trade of the United States; the price of vessels built under this act, together with the price of changes made during the construction of the vessels, shall be submitted by the owners to the United States shipping board for approval.

"Sec. 4. That there shall be paid from any money in the treasury not otherwise appropriated, upon the warrant of the chairman of the United States shipping board and with the approval of a majority of the members of the board, to the builders of vessels in the United States who conform to this act, a sum not less than 20 per cent or more than 30 per cent of the cost of each and every vessel so built; the comptroller of the treasury shall be and he is hereby authorized and directed to make such payments when duly certified by the chairman of the United States Shipping board; and the sum of \$20,000,000.00 shall be and it is hereby appropriated for payments to be made on vessels

constructed under this act; the interest of the United States in a vessel so built shall be depreciated at the rate of 5 per cent of the amount paid by the United States, per annum, and shall cease at the end of twenty years.

"Sec. 5. In the event of a sale and change of the flag of a vessel built under this act, before the interest of the United States ceases, the United States shall be repaid for the interest it holds at the time of sale.

"Sec. 6. That in case of war or national emergency, the United States shall have the option of purchasing or chartering vessels built under this act for a period of twenty years after the date of documentation, on the following terms:

"If the vessel is purchased, the sum to be paid the owner by the United States shall be the original cost of the vessel to the owner (exclusive of the amount paid by the United States to the shipbuilder) less five per cent per annum for depreciation.

"If the vessel is chartered, the sum to be paid the owner by the United States shall be at the rate of eleven per cent of the original cost of the vessel to the owner (exclusive of the amount paid by the United States to the shipbuilder), provided that all the costs of operation, maintenance, repairs, insurance, etc., are paid by the United States during the charter period and the vessel is returned to its owner in as good condition as when chartered, ordinary wear and tear excepted."

#### Some Objections Answered

The United States can give protection equivalent to section four of the bill by making loans from the construction loan fund equal to 50 per cent of the cost of vessels built in the shipyards of the United States for the foreign trade, without interest, and payable in twenty equal annual installments.

Certain criticisms of the proposed bill have been made. One appearing in a New York newspaper claims that "protection for American shipyards is not needed as the world is overtoned and that this is not the time to seek protection." In response to this comment it is only necessary to point out that any period of time is of little consequence in the determination of a national policy and a statement to the effect that ships should not at this time, be built in American shipyards, is in reality a statement that ships should not be built in American shipyards at any time.

Another critic of the proposed bill for protection for American shipbuild-

ing has said that the bill will not have the support of the President, the state department or the majority of congress as they do not believe a national emergency will again occur wherein the United States will require ships for its national defense. In answer to this criticism it is suggested that the only way to predict the events of the uncertain future is from a study of what has happened in the past. History is our only guide to the future. When the writer was a student at college, he engaged in a debate to show that the pen was mightier than the sword. It was argued that our civilization had reached a development where diplomacy would thereafter settle the controversies between nations. His side won the debate. Since that time the world has been continuously at war and all the civilized nations of the world have engaged in at least one struggle that threatened their destruction and this country has been involved in at least two major conflicts. The writer has, therefore, changed his opinion since the time of the debate. It is dangerous to navigate the ship of state on a new course and assume that the uncharted future will be smooth sailing and different than the past.

Still another comment has been made to the effect that the interest of the United States in the vessels is not protected. As set forth in section two of the bill it is the intention that the interest of the United States shall be protected only by the right of seizure and sale, provided that in case of partial loss or damage that interest shall continue in the event of the repair of the vessel and only in such event.

Last traces of one of the modern wonders of the world, the Hog Island shipyard near Philadelphia on the Delaware river, rapidly are disappearing. Recently the dismantling of the steel derricks which served the 50 shipways was completed. There were 200 of these derrick towers, about 20 x 30 feet at the base and 50 feet high. The problem was not only to cut them down but to reduce them to scrap in marketable sizes. The job was accomplished in only four months by a crew of a dozen men. What once would have been a colossal wrecking undertaking was rendered a comparatively simple matter by another modern wonder—the oxy-acetylene torch.

Lorin W. Ferdinand, head of the L. W. Ferdinand & Co., Boston, manufacturers of marine glues and specialties, died recently at his home in Cambridge, Mass.



# Safety Depends on Good Pilots

The New York and New Jersey Sandy Hook Pilots Are Carefully Picked—They Go Through a Long and Rigorous Training

By A. H. JANSSON

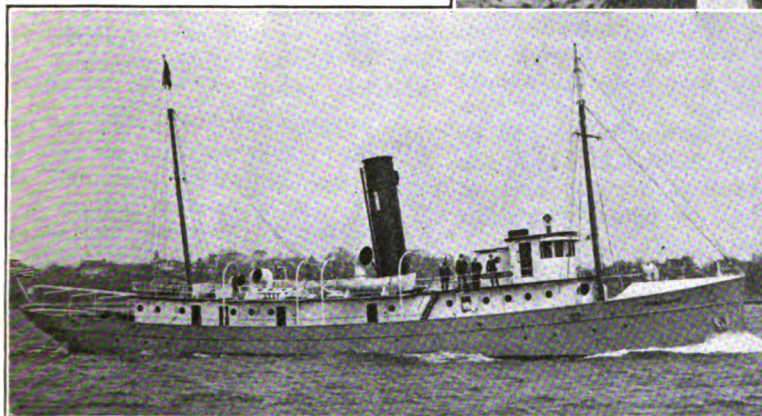
**T**HE business of piloting ships is an ancient and honorable calling requiring accurate knowledge, skill in seamanship and courage. All ships entering and clearing foreign at the port of New York are required by state law to use pilots licensed under the laws of the states of New York or New Jersey. All states are specifically prohibited from compelling coastwise ships, navigated by masters holding federal government licenses as pilots, to use pilots licensed by the state, or to levy any pilot charges upon such ships. On the other hand, the master of a coastwise ship coming into or going out of any port located in water bounded by two states may employ any pilot licensed or authorized by the laws of either state. The use of a pilot is parallel to that of calling in a specialist by the general practitioner when his diagnosis indicates a difficult specific case. A master of an incoming or outgoing ship

merged reefs. On account of this responsibility as a measure of safety for his own ship and for other ships the law compels a master of a ship entering and clearing foreign to avail himself of the expert knowledge of the harbor, its channels and its traffic, possessed by a licensed pilot. In the case of coastwise vessels the presumption is that this expert

the rule is in force that a pilot licensed by the state must be used for such ships. Ships in emergencies have sometimes done well without pilots, or rather their navigators proved themselves good pilots. No commander was ever more seriously in need of a pilot with accurate knowledge of the location of the mines and torpedoes than Farragut at Mobile or Dewey at Manila. Still they got through, with good luck and skill.

## Pilots Have Two Associations

Two pilot organizations, known as the New York Sandy Hook Pilots association and the New Jersey Sandy Hook Pilots association, serve the port of New York. The New York organization has a membership of 80 active licensed pilots, and the New Jersey organization has a membership of 40 active licensed pilots while both organizations have a number of retired members. Though separate organizations they co-operate amicably in a



(LEFT)—A MODERN PILOT BOAT IN USE AT HAMPTON ROADS. (RIGHT)—A REMINDER OF THE OLD DAYS WHEN PILOTS RACED TO GET A SHIP. (CENTER ABOVE)—PILOT BOARDING THE S. S. GEORGE WASHINGTON OF THE UNITED STATES LINES IN NEW YORK HARBOR

in this instance is the general practitioner while the pilot is the specialist.

Masters of sea going vessels have a wide and thorough knowledge of the art of navigation and the safe operation of their ships. It is taken as a matter of course that they know the position of their ship at all times, that they are thoroughly versed in all aids to navigation, and theirs is a direct responsibility for the safety of the ship against collision, grounding or striking any charted sub-

knowledge in a sufficient degree is part of the equipment of the master of such a vessel gained through many repeated voyages to the ports in question. Such knowledge may also be possessed by masters of liners or vessels sailing foreign making frequent regular calls at the same port, gained by constant contact with and observation of the work of a pilot. The general presumption is, however, against thorough knowledge of the port on the part of all masters of ships sailing foreign, and consequently

fair division of the work to be done and the rates for service is the same. A joint executive committee consisting of eight members, that is the two officers; president and secretary and two members of each association, controls the relations between the two organizations. This co-ordination and combination of efforts came about in 1895, prior to which there existed the keenest sort of competition and rivalry between a large number of independently owned sail pilot boats, the pilots numbering at that time 166.



In those days the pilot boat first in contact with an incoming ship was entitled to the fees. The pooling of calls to service has not only greatly improved the service but has reacted favorably to the welfare of the individual pilot. Pilot associations resulted as a mutually protective measure, to keep up the standard of quality and to control pilot activities in an orderly and regular manner so that immediate and adequate service could be given at all times. Though only quasi public bodies the pilot associations serving the port of New York, are recognized by the state governments of New York and New Jersey to the extent of making it mandatory by law that ships entering and clearing foreign must avail themselves of licensed pilots. By legislative action the states of New York and New Jersey provide for boards of commissioners of pilots. It is the duty of these boards to supervise the activities of the pilot associations, examine candidates and issue licenses as pilots and to regulate the fees charged for pilotage. The state of New York provides for the appointment of a board of Pilot Commissioners of five members with a term of office of two years. Three of these members are appointed by the chamber of commerce of the city of New York and two members are appointed by the New York Board of Underwriters. In New Jersey the Board of Commissioners of Pilots consists of six members appointed by the governor for a term of three years.

#### How Pilots Are Selected

The pilot organizations select their own candidates. They choose young men of intelligence, rugged physique and good home surroundings. These young candidates, though well treated as young midshipmen might be in relation to senior officers, are compelled to spend from four to seven years as boat men, deck hands, and general aides to the pilots. After this period of initiation the candidate spends one year accompanying a pilot in the performance of his regular duties. On the completion of this year of instruction and observation, the candidate must pass an examination before the Board of Pilot Commissioners. If the candidate passes this examination he is given a license good for one year, permitting him to pilot vessels not over eighteen feet in draft. At the end of the first year if his services have been satisfactory a license is again issued for one year allowing him to pilot vessels not exceeding 24 feet in draft. At the end of this time if he has performed his duties in a satisfactory manner, a

license is issued for unlimited draft. Licenses must be renewed every year for all pilots. Though fairly remunerative the long apprenticeship at nominal pay and most arduous and hazardous duty, tends to keep out of the service the weak and timid and those who do not have an inborn love of the sea even in its wildest aspects. It is strenuous and dangerous work to launch a small boat in a heavy sea and maneuver alongside a high-sided ship with such expert handling that the pilot is able to make a safe landing on a swinging Jacob's ladder.

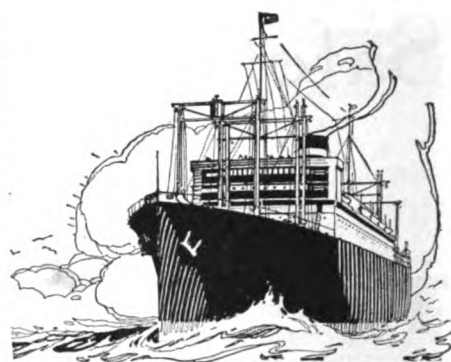
#### Fixed Rates Charged

Pilotage charges are fixed per foot of greatest draft of the ship, and are determined by the pilot associations to the approval of the Board of Commissioners of Pilots. The schedule of charge may change from time to time and is given out by the pilot office to anyone desiring the information. Recently the schedule of charges was as follows:

| Outbound<br>per foot of<br>greatest draft | Limiting<br>drafts<br>feet | Inbound<br>per foot of<br>greatest draft |
|-------------------------------------------|----------------------------|------------------------------------------|
| \$2.02                                    | Up to 13½                  | \$2.78                                   |
| \$2.33                                    | 14 to 17½                  | \$3.38                                   |
| \$3.08                                    | 18 to 20½                  | \$4.13                                   |
| \$3.56                                    | 21 and up                  | \$4.88                                   |

During the fiscal year ending June 30, 1923, 5548 vessels entered and 5805 vessels cleared foreign at the port of New York. Assuming for all these vessels an average draft of 21 feet and considering only the entrances and clearances foreign for the last fiscal year a tentative total figure for pilotage in and out of New York for this class of vessel will be something over \$1,000,000. That the total of pilot dues for the port of New York is considerably greater than this figure seems reasonably certain as many vessels coastwise, though not compelled by law to do so, use pilots in coming in and going out of the harbor. Considerable sums of money are invested by the pilots' associations in their pilot boats and equipment, upkeep, office expenses, pensions, etc., so that the remuneration by the individual pilots though good is not exceptional when the services they are called upon to render is taken into consideration.

A contract for the furnishing of 42 generators has been awarded to the Ridgeway Dynamo & Engine Co. of Ridgeway, Pa., at a total price of \$60,046. These generators are intended for use on the 14 vessels which the United States shipping board is converting to diesel propulsion. Thirty-seven of these machines will be 75 kilowatt, 265 revolutions per minute and seven will be 75 kilowatt, 250 revolutions per minute.



### Marine Exposition in New York—Nov. 9-14

The development of an American merchant marine and its subsidiaries, port and harbor improvements, requires co-operative effort upon the part of all branches of the marine industry. Today there are perhaps nearly a hundred marine and allied associations grouped around very highly specialized parts of this industry. What is required is united thought and action. Naturally an exposition should be the center of such a gathering, as personal contact and exhibits of possible developments are necessary to develop one concrete idea acceptable to the ship owners, ship operators, ship builders, port organizations, harbor commissions, builders of propelling, auxiliary and material handling apparatus, as well as to sell the big idea to the operating personnel and American public.

A movement is now gathering momentum to have as many as possible of these organizations hold their annual or a special meeting in New York City during the American marine exposition, Nov. 9 to 14, 1925. All of these meetings of course would be held under their respective flags flying as high or higher than that of the American marine association. Out of such a gathering should arise at least one joint meeting of all the associations, one that would really be representative of the marine industry. A number of societies have already promised to co-operate.

The effect would be really impressive upon the American public whose financial and business support is necessary to establish the American merchant marine.

A keen interest in this year's American marine exposition is best illustrated by the large number of contracts placed for the reservation of booth space. Out of 44 wall booths only five remain unsold; six out of eight double booths have been contracted for and a large number of the center booths have been reserved.





Where internal combustion engines are produced in great numbers—Large engine machine shop of Fairbanks, Morse & Co.

# Build Diesels To High Standard

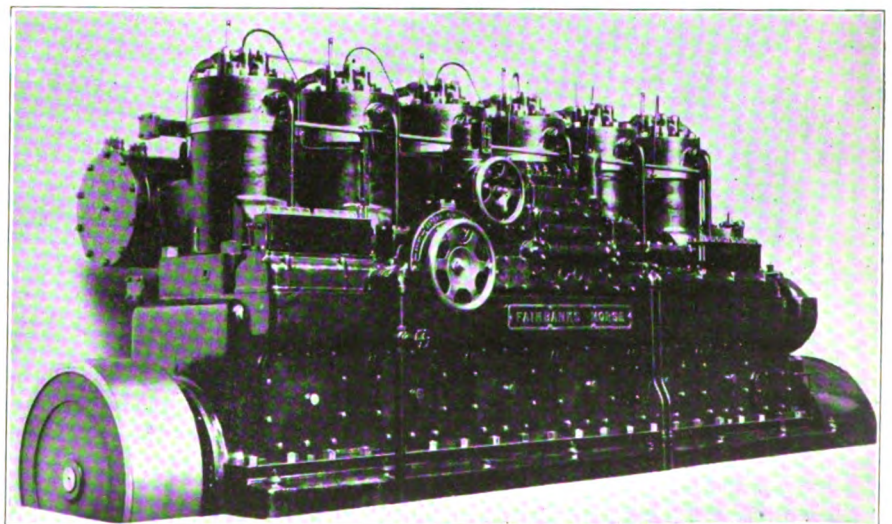
**P**ROBABLY as much progress has been made in marine diesel engine design in the past five years as in the automobile engine in the past ten. With the growing adoption of diesel propulsion have come opportunities to observe and study the operation of internal combustion engines under practical conditions on shipboard showing a better insight into possible improvements than is possible in the most stringent shop tests. Crankshaft failures have become practically unknown, largely through the use of better materials and research into torsional vibration and critical speeds. Cylinder and cylinder-head castings have been redesigned to eliminate the causes of strain. Moving parts have been reduced in number and enclosed.

Design, methods of production and inspection have been directed toward those two absolute essentials of all successful marine equipment, dependability and simplicity. A better understanding of the requirements of the marine field has been acquired. Diesel engine building plants have been geared up to the production of an engine that must never fail, that will be operated by an engineer schooled in the ways of reciprocating engines and turbines, though incidentally it may be said here that adequate training of engineers to run diesel engines is very important and should be stressed with all the vigor possible. The marine diesel engine is today a refined product, but it should not be abused through lack of operating skill.

## Interesting Methods of Control Applied To Insure Quality in Material—Tolerances Strictly Limited and Inspection Rigid—Typical Recent Installations in Three Different Boats

In the Fairbanks, Morse & Co. plant at Beloit, Wis., is to be found a good example of marine diesel engine building practice. In the past thirty years this plant has placed over 3,000,000 horsepower of internal combustion engines into service. The plant covers 83 acres and employs 2500 workmen. It is self-contained to the point of forging its own billets for crankshafts.

Unique, but rapidly gaining in general favor, is the allocation of inspection at the Fairbanks, Morse plant to the engineering rather than to the production department. It is felt that the engineer sets the ideal in design and hence should follow it through. He is not under so great pressure for



A FAIRBANKS, MORSE TYPE C-O 360-HORSEPOWER, 250 R.P.M. DIESEL MARINE ENGINE—SIX CYLINDER, TWO CYCLE, VALVELESS, COLD STARTING MECHANICAL INJECTION



production and is in position to exercise more critical and unbiased judgment in the matter of quality.

If any one part of a marine diesel engine may be said to be the most important it is the crankshaft. Steel for it is purchased in the ingot form, with rigid specifications as to manganese, silicon, sulphur, carbon and phosphorus content. Only bottom-poured ingots are acceptable, and as high as 30 per cent is cropped off the top to eliminate impurities. On arrival at Beloit all ingots are inspected for seams or surface defects, and metallurgical and chemical tests are made. Each ingot is numbered before going to the storage yard.

A 1000-ton hydraulic press is used for forging the crankshafts. The hydraulic press method, according to Fairbanks, Morse engineers, refines the material at the center of the shaft. The billets are forged at about 2000 degrees Fahr., the temperature and forging time being closely regulated by the engineering department in conformity with the chemical analysis of the billet being worked. After forging, the shaft goes to the crankshaft machine shop where the journals are rough turned, the throw blocks drilled and blocks of metal sawed out. The crank pins, which are in square form,

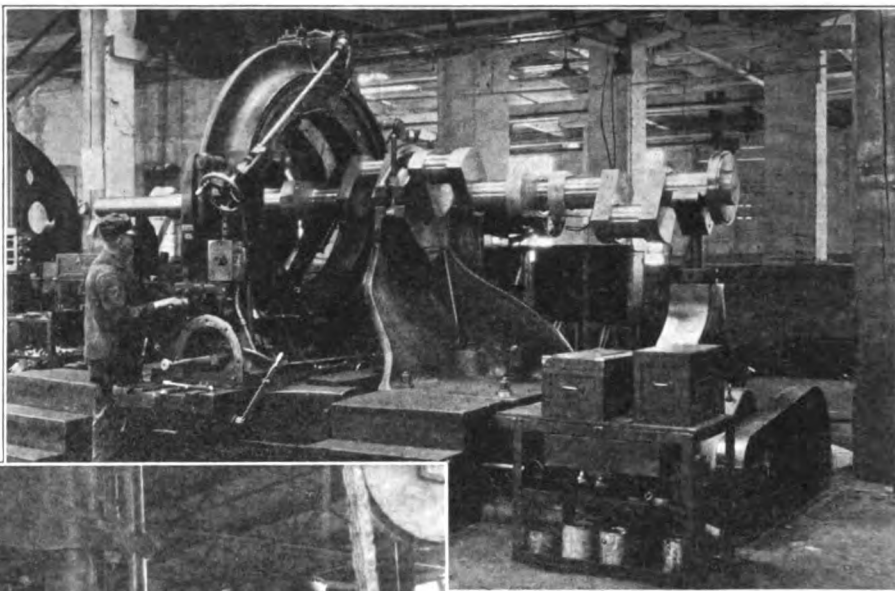
is based upon these standards: Tensile strength, 80,000 pounds per square inch; elastic limit, 50,000 pounds per square inch; reduction of area, 45 per cent; elongation in 2 inches, 24 per cent; bend test of a 2-inch bar taken from the shaft, 180 degrees without fracture. Connecting rods are die-forged.

#### Every Process Is Controlled

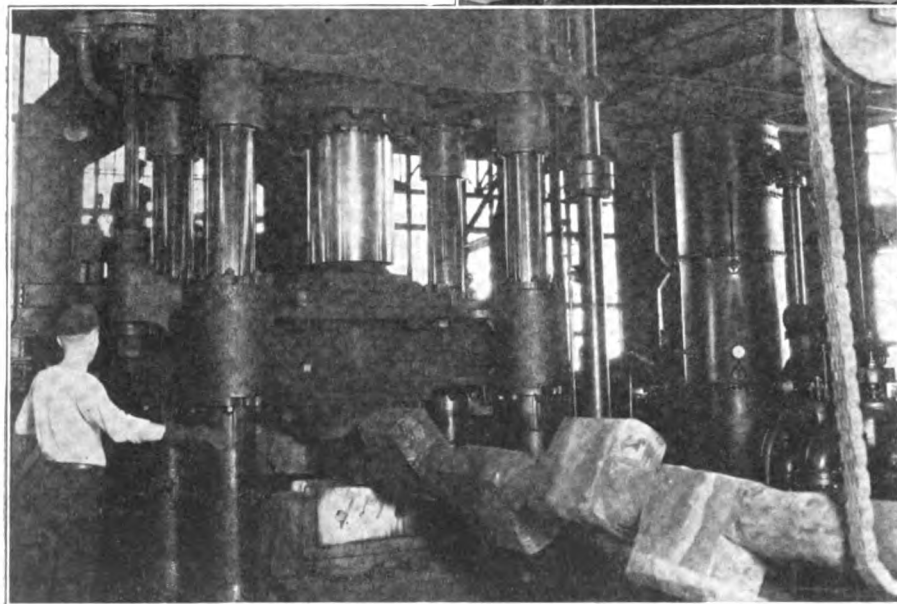
The gray iron foundry of the Fairbanks, Morse Co. at Beloit is 454 feet wide and 544 feet long, with four 96-inch cupolas with a total capacity of 80 tons per hour. There is storage space for 18,000 tons of sand,

from strains and stresses caused by pouring practice, a special method of curing castings in sand has been devised to take the place of the customary annealing. The special equipment of the foundry includes 230 molding machines, 31 traveling cranes and 30 air hoists.

Steel parts are finished in one machine shop and the cylinders, pistons and all cast iron and brass parts in another. Special jigs and fixtures have been worked out to effect complete interchangeability. The limits of accuracy are at least equal of those governing the finishing of the finest automobile engines. As an example of



A LATHE WHERE THE TOOL REVOLVES FINISHING THE CRANKPINS ON A CRANK-SHAFT FOR A 360-HORSEPOWER DIESEL ENGINE



FORGING THE CRANKSHAFT FOR A DIESEL ENGINE AT THE BELOIT, WIS., WORKS OF FAIRBANKS, MORSE & CO.

are rough turned. The shaft is then inspected and returned to the forge shop for heat treatment. Furnace temperatures are recorded by electric pyrometers placed in a locked room. Lights and deviation meters make a continuous record which is carefully preserved with other data concerning the individual shaft.

The heat treatment accorded shafts

10,000 tons of pig iron, 3000 tons of scrap and 1000 tons each of coke and lime. Mixtures are made up and charges weighed under the direct control of the laboratories. A sample of the molten iron from each cupola is analyzed every hour. An analysis is also made of each ladle. To insure the cylinder and cylinder-head castings being hard and at the same time free

the high standards that must be adhered to, room temperature is compensated for in order to eliminate inaccuracy caused by sag.

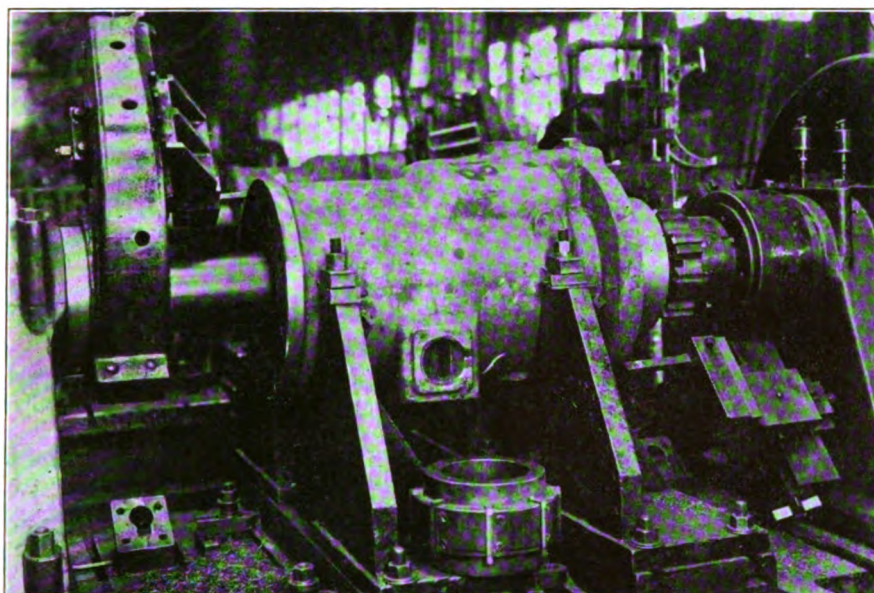
To make absolutely certain that the crank pins are parallel with the journals a special lathe is employed wherein the crankshaft remains stationary and the tool revolves around the work. Considering that the crankshafts range from 6 to 10 inches in diameter and frequently exceed 20 feet in length, the following tolerances reveal the dependability that is built into them:

*Axes of journals and crank pins to be paralleled with total of 0.002 inch measured in the length of the crank pin.*

*Variation in axis of any journal from axis of shaft, measured by revolving shaft in V blocks, shall not exceed 0.0015 inch radially measured in the length of the journal.*

*Axially, center to center of adjacent*





HOW CYLINDERS FOR DIESEL ENGINES ARE BORED AND FACED AT THE BELOIT, WIS., PLANT OF THE FAIRBANKS, MORSE & CO.

*cranks plus or minus 0.015 inch, center to center of extreme cranks plus or minus 0.030 inch.*

*Angular position of centers of crank pins plus or minus  $\frac{1}{2}$  degree.*

*Radially, distance from center of shaft to center of crank pin plus or minus 0.010 inch.*

*Diameters of pins and journals plus or minus 0.002 inch.*

*Pins and journals to be within 0.002 inch of round.*

*Journals, pins and fillets all to be highly polished; all other parts to have smooth tool finish.*

#### Machining and Testing Methods

Special fixtures also are required for the completion of the die-forged connecting rods. After having been machined the rods are checked to make certain that the piston pin bearing is parallel with the foot of the rod in both planes. The wrist pin boxes, which are bolted to the foot of the connecting rod, are bored out by a special angle plate fixture which insures this bearing being parallel with the piston pin bearing.

The Fairbanks, Morse practice is to bore and ream cylinders rather than grind them, it being held by the engineering staff that reaming provides a better surface for lubrication by leaving the pores open. All bearings are oversize. Although the bed plates for the large ratings are over 20 feet long, supports for the bearings are machined at one operation. The pump cases of the C-O type engines are machined in special jigs and holes held within the limits of 0.002-inch.

A full week is required for the final testing. The first half is devoted to a gradual wearing-in and disassemb-

ling for inspection of all parts. In the last three days of the tests each engine is operated for six hours at its full rated horsepower followed immediately by a two-hour run at a 20 per cent overload. Here as in all previous stages of production the engineering department is in complete charge and the goal is not to rush a unit off the testing floor but to insure that every unit will stand up even under the most adverse conditions encountered at sea.

#### Oil Engine Installations for Marine Service

Having given a brief illustrated outline of the methods pursued by the Fairbanks, Morse & Co. in the building

company in a variety of boats.

The tug **ENDURANCE** built of steel at Craig Bros. Marine Railway, Norfolk, Va., and recently completed was especially designed for canal towing. This tug is owned by the Power Towing Corp., 44 Whithall street, New York City. The dimensions are: length, 64 feet, 11 inches; beam, 16 feet, 4 inches; depth molded, 10 feet. She is powered with a six-cylinder 150 brake horsepower Fairbanks, Morse type C-O heavy duty direct reversible marine oil engine, with bore,  $10\frac{1}{2}$  inches; stroke,  $12\frac{1}{2}$  inches. The propeller of bronze is 62 inches in diameter by 30 inches in pitch is three-bladed type E, Columbian. The auxiliaries are, one Gardener-Rix air compressor  $4\frac{1}{2}$  inches x  $4\frac{1}{2}$  inches; one six-horsepower auxiliary engine of Fairbanks, Morse make; one fire and wrecking pump; one 4-inch centrifugal pump, one  $1\frac{1}{2}$  Rumsey rotary bilge and deck pump. There is one Fairbanks, Morse, double duty light plant and one mile-ray search light. The steering gear is of the hand vertical shaft gear type. The tug is also equipped with a Maxim silencer.

#### Canal Tug Endurance

After a trial run at Norfolk, towing a loaded barge on two short hawsers, the **ENDURANCE** left for New York. The voyage from Norfolk to Mariners Harbor, Staten Island, N. Y., was made in an actual running time of 34 hours, and this with a heavy sea running. In adjusting the compass before leaving Norfolk a good test was given the engine for maneuvering, as the engine is direct reversible. It was reported that for the maneuvering necessary in the



TUG BOAT ENDURANCE UNDERGOING AN INSPECTION TRIAL TRIP IN NEW YORK HARBOR, MAY 5—RECENTLY COMPLETED AT CRAIG BROS. MARINE RAILWAY, NORFOLK, VA.

of diesel engines at its plant in Beloit, Wis., it may be interesting to look over several of the recent marine installations made by this

adjusting of the compass the eight 20 x 60-inch air tanks proved to be ample. The tug was maneuvered for about two hours and during this



time it was not necessary to start the auxiliary air compressor.

In the harbor of New York an inspection trial trip was held early in May. A number of marine men were on board during this successful trial.

#### Diesel Electric Ferry

On May 14 the Falls City's Ferry & Transportation Co. operating be-

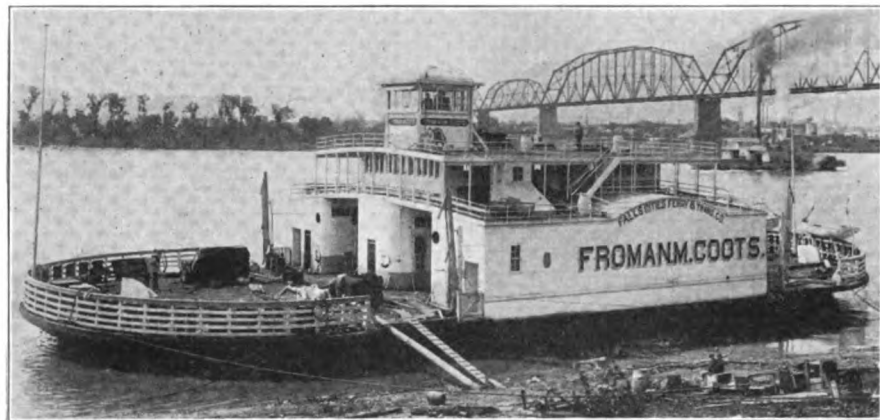
der the name of William S. McChesney and the steel hull was built by the Howard Ship Building Co., Jeffersonville, Ind., in 1913. The dimensions are: length, 172 feet; beam, 45 feet; depth, 7 feet; draft, 30 inches; tonnage 490 net. It was the high cost of operation with steam equipment which decided the owners to convert the vessel to diesel electric drive.

the second unit serves as an additional factor of safety which more than offsets the additional cost of the two-unit drive. Each one of the two side wheels which are 24 feet in diameter by 10 feet wide, with 24-inch paddles, is driven by a 175 horsepower, 425 revolutions per minute, 230 volt, shunt wound direct current motor of General Electric make. The motors are geared to the side wheels as shown in one of the accompanying illustrations.

Complete control of the electrical equipment is centered in the engine room. A duplicate control is located in the pilot house so that the pilot may have complete control of the ferry from that location. If desired, however, it is easy to transfer control to the engine room. When the control rests with the engineer, the pilot signals to the engine room in the usual way.

All of the auxiliaries are electrically operated with the exception of a small engine-driven air compressor. Some of the auxiliaries are, a fire pump, air blower for blowing air on the commutators of the main motor, sanitary pump, steering motor, motor generator set for 110-volt lighting, bilge pump and electric air compressor for supplying starting air for the diesel engines.

Latest engineering practice has been applied as indicated by the fact that pyrometers are used for determining the temperature of the exhaust. A thermo-couple is located in each exhaust pipe. It is, therefore, possible for the engineer to keep an accurate check on the operating condition of the engines. The engines are also equipped with speed regulators so that it is possible to slow



FIRST DIESEL ELECTRIC SIDE WHEEL FERRY BOAT—NOW OPERATING BETWEEN LOUISVILLE AND JEFFERSONVILLE, IND.

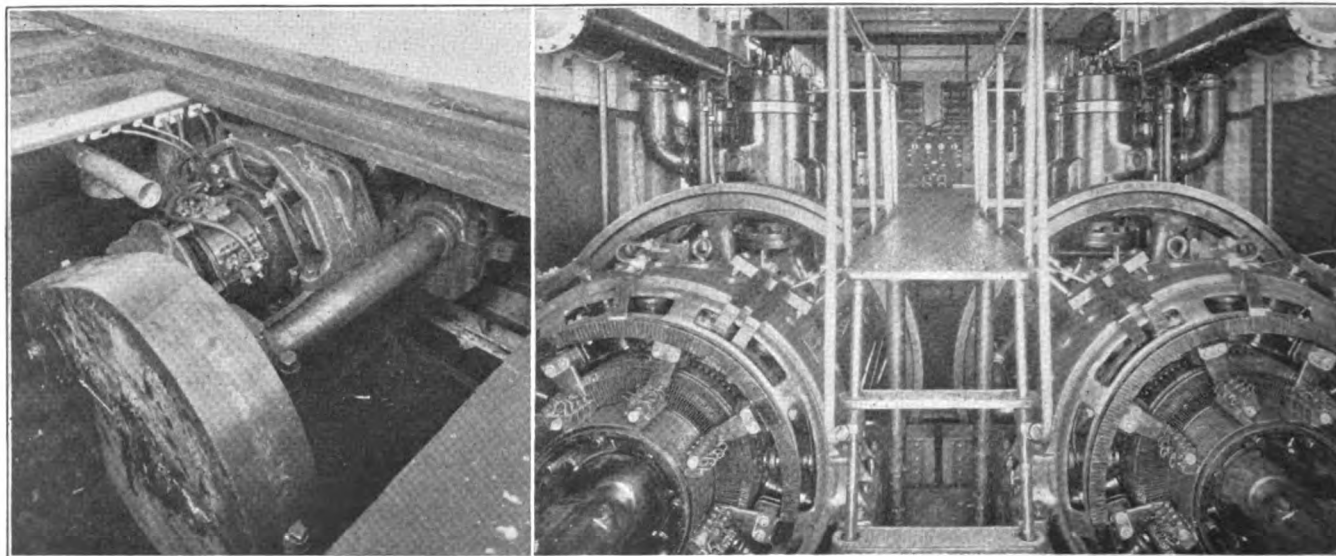
tween Louisville and Jeffersonville, Ind., christened a diesel electric driven ferryboat, the Froman M. Coots. The engineering work in connection with this radical departure from usual river practice was carried out by William A. Ingram, engineer of the Ferry company, in conjunction with engineers of Fairbanks, Morse & Co., who supplied the two diesel engines and some of the auxiliary equipment, and the General Electric Co. who supplied the electrical propulsion and control equipment.

This converted ferry was formerly operated with steam equipment un-

der the name of William S. McChesney and the steel hull was built by the Howard Ship Building Co., Jeffersonville, Ind., in 1913. The dimensions are: length, 172 feet; beam, 45 feet; depth, 7 feet; draft, 30 inches; tonnage 490 net. It was the high cost of operation with steam equipment which decided the owners to convert the vessel to diesel electric drive.

Two diesel engines of Fairbanks, Morse manufacture each rated at 240 brake horsepower, 257 revolutions per minute, were installed. Each engine is directly connected to a General Electric Co., 175 kilowatt, 257 revolutions per minute, 230 volt, 760 amperes, compound wound, direct current generator. These generators in turn furnish current for the main motors, all the electric auxiliaries and lighting.

A choice of two units was made so that one could operate the ferry for ordinary schedule conditions and for ordinary stages of the river, while



(LEFT)—ARRANGEMENT USED IN GEARING ELECTRIC DRIVING MOTORS TO SIDE PADDLE WHEELS—(RIGHT)—VIEW OF ENGINE ROOM OF THE DIESEL ELECTRIC FERRY FROMAN M. COOTS LOOKING FROM THE GENERATOR END



them down at the dock if desired. The control of the speed of the motors in driving the side paddle wheels is so accurate that it is possible to steer the boat by varying the speeds of the side wheels. A small wheel in the pilot house controls the steering motor and the instruments in the pilot house indicate the load on each motor and the speed of the paddle wheels in revolutions per minute.

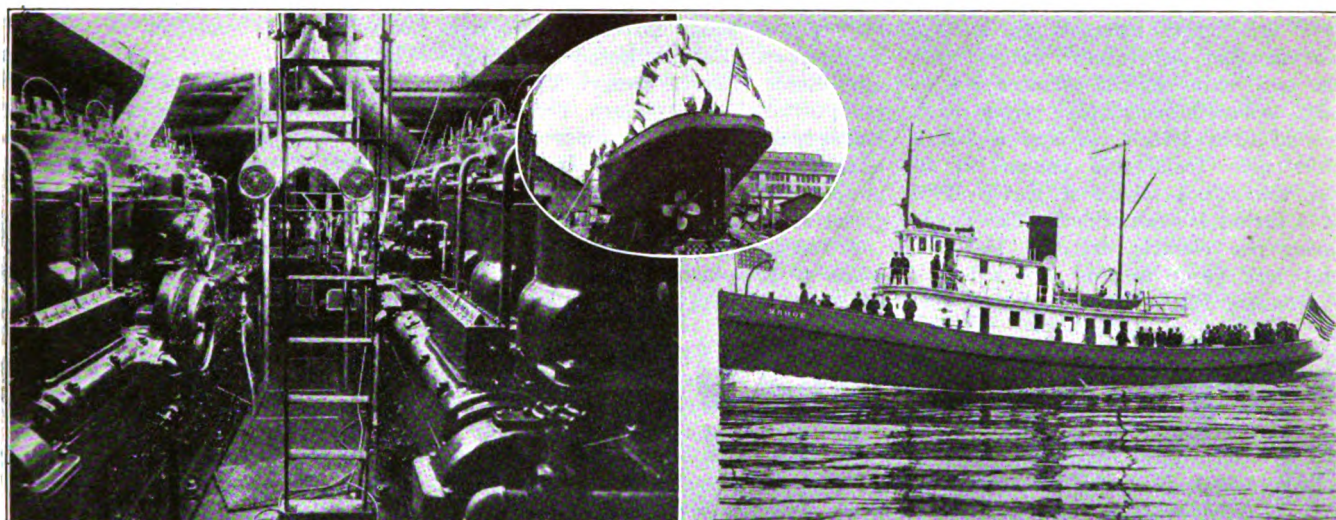
Service trips already made with this ferry have demonstrated that it operates at a low fuel and labor cost, that the cleanliness and freedom from

ing radius of approximately 7500 miles.

After limited trials of about nine hours running and ten hours of dock testing, the MAHOE set out on May 20 from Seattle for Honolulu, towing a 20 x 140-foot scow also built at Seattle by the Ballard company. Making a non-stop run she arrived in Honolulu in 14½ days, an achievement which surely shows the reliability of diesel engine power.

The layout of the engine room as can be seen from the accompanying illustrations, though compact is so arranged that all parts of the engines

stage air compressor on the other end. Electric current for operating the auxiliaries is obtained from this generating set, while the compressor supplies air for maneuvering. No air is required for the main engines as they are of the airless injection type. There is an auxiliary generating set consisting of a 7½-horsepower Fairbanks, Morse, type C-O oil engine directly connected to a 4½-kilowatt direct current generator. In a well ventilated room located underneath the forecabin are installed 100 cells of type A—H, Edison batteries, and the



(LEFT)—ENGINE ROOM OF THE MAHOE—TWO 360-HORSEPOWER TYPE C-O FAIRBANKS, MORSE DIESEL ENGINES. (RIGHT)—THE MAHOE TWIN SCREW DIESEL TOWBOAT FOR YOUNG BROS., HONOLULU, ON TRIAL TRIP IN SEATTLE HARBOR. (INSERT)—THE MAHOE READY TO LAUNCH

smoke and soot is appreciated by passengers and that the flexibility of maneuvering with pilot house control makes operation easier and safer.

#### Large Twin Screw Diesel Tug

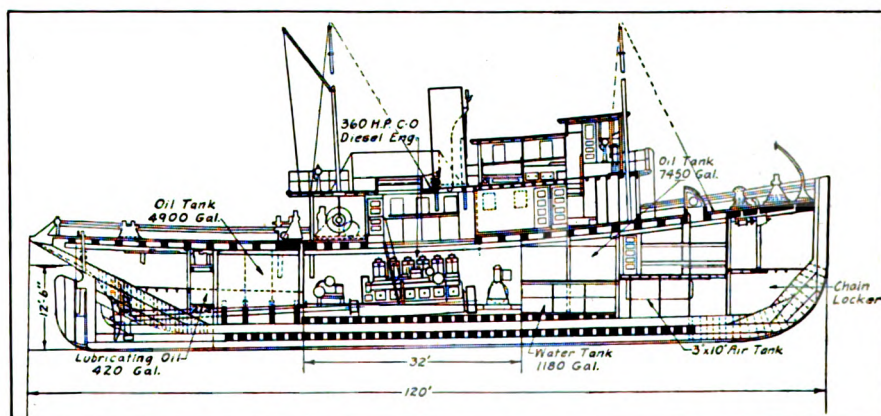
No better example of real up-to-date practice in applying diesel engines could be given than the recently completed twin screw towboat MAHOE. The MAHOE was built at the Ballard Marine Railway Co., Seattle, Wash., for Young Bros., a towing concern in Honolulu. It is believed that she is the largest diesel powered towboat in the world. She is equipped with two Fairbanks-Morse 360-horsepower, type C-O diesel engines, each directly connected to a propeller. The MAHOE is 120 feet long; 24 feet, 6 inches in breadth; with a draft aft of 12 feet, six inches and a draft forward of 10 feet, 6 inches. The propellers are each four-bladed and are 75 inches in diameter and 54 inches in pitch. They are built of bronze and are designed to turn at 250 revolutions per minute. On her trial trip, the MAHOE made 12.6 knots per hour. The tug is equipped with a fuel capacity of 4000 gallons which gives a cru-

are readily accessible for inspection. A double skylight is placed at the upper deck in the center of the engine room space. On either side is installed a five-inch I-beam with a trolley over each engine on which is carried a chain hoist for handling heavy parts.

The main generating set consists of a 45-horsepower Fairbanks, Morse, type C-O oil engine directly connected to a 30-kilowatt generator. The same engine is also clutch coupled to a two

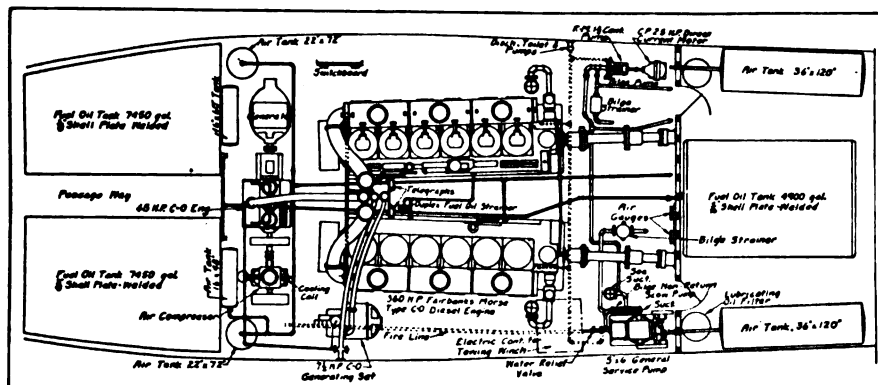
switchboard is so connected that either of the generating units can throw their entire output into these batteries which float on the line, furnishing light and power for the entire ship.

The exhaust from all four engines is carried to the center of the engine room and slightly above the level of the engine room grating through copper pipe, flanged on to the iron drop pipe from the water cooled exhaust pot located on the upper deck.



INBOARD PROFILE OF THE TWIN SCREW DIESEL WOODEN TOWBOAT MAHOE





LAYOUT OF MAIN ENGINES AND AUXILIARIES IN THE TOWBOAT MAHOE

Into this water exhaust pot is also carried the circulating water from the two main engines through a 2½-inch brass delivery pipe from each engine to a 3-inch tee and a 3-inch riser pipe from this connection to the water pot where a water level of 4 inches is maintained. The auxiliaries are electric driven. The fire and dock pump unit is a 5 x 6-inch Fairbanks, Morse duplex piston pat-

tern power pump driven by a ten horsepower, 1150 revolutions per minute, direct current motor. The bilge pump unit is a 1½-inch Fairbanks, Morse centrifugal pump connected with a flexible coupling to a two horsepower, 1150 revolutions per minute direct current motor.

A very important and interesting piece of equipment is located at the aft end of the main deck house,

though the publicity may be good. at the sides by the side walls extended. That is, the electric towing machine, the drum of which carries 1826 feet of 1¼-inch galvanized plow steel hawser.

In the wheel house is a twin engine room telegraph instrument. There is also a standard which carries a lever for operating the electric steerer. On the wall there is a helm angle indicator showing by the lighting of electric bulbs the position of the helm at any time. As an emergency there is a hand steering wheel and the shift from electric control to hand control can be made in ten seconds.

On her maiden voyage from Seattle to Honolulu under the command of Capt. George Jennings, the Mahoe carried as interested observers, C. R. Miller, Seattle manager for Fairbanks, Morse & Co., T. W. Smith, manager of the Ballard Marine Railway Co., and John A. Young, general manager of Young Bros.

## Why the Board's Deficit Is So Big

**M**ORE light on the colossal losses incurred by the shipping board in its attempt to build up a government-owned merchant marine is shed by a series of articles which recently appeared in the *New York Evening Post*. The enormous cost of both the passenger and freight services of the board is fully set forth. The author, Louis Seibold, says that the only ships operated by the government at a profit are 17 tankers which last year cost \$4,485,079.71 to run and earned \$5,350,814.71, leaving a profit of \$865,735.

Continuing, Mr. Seibold's says, in part, as follows:

The 305 cargo ships (freighters) operated by the government last year cost \$90,878,239.33. The revenue accruing from operation was \$63,484,414.77, leaving a dead loss of \$27,393,824.56.

The fifteen (or twenty) passenger ships designed to impress the world at large with the importance of the American merchant marine proved more costly than the same number of cargo vessels. The passenger ships with limited cargo facilities rolled up an expense account of \$36,435,748.39 and earned \$32,014,897.40, the net loss being \$4,420,850.99.

The bulky LEVIATHAN, which was interned at the outbreak of the war and subsequently became the property of this country, holds the star place for merchant marine losses. The LE-

VIATHAN cost \$8,000,000 to recondition. It made 13 voyages last year at a total expense to the government of \$6,799,973.34. The total revenue earned by it on these voyages was \$5,775,563.83, with a net loss of \$1,026,409.51.

### Cheap Trips For Congressmen

Added to the \$8,000,000 which the government spent to recondition the German built LEVIATHAN, that spectacular factor in our merchant marine has cost somewhere around \$10,000,000, including "storage" charges, which during her period of idleness amounted to more than \$3000 a month.

Three other transatlantic flyers operated as passenger units in our merchant marine establishment have also proved costly. To start off, the REPUBLIC cost to recondition \$4,750,000, or almost one-half the amount the government paid out to put the LEVIATHAN in shape.

Officials of the shipping board justify the maintenance of the LEVIATHAN and other passenger ships at government expense on the ground that they serve to attract trade to cargo vessels in the merchant marine establishment.

Secretary of Commerce Hoover pointed out in a recent report to President Coolidge that the experiment in this line adopted when Mr. Lasker was chairman of the shipping board was of little or no trade value,

though the publicity may be good.

The value of the LEVIATHAN as either a bait for trade or as an actual conveyer of freight has been a matter of dispute between shipping men and government officials ever since she was put on the transatlantic run two years ago.

Shipping experts as a rule hold that the LEVIATHAN is practically useless as either a feeder or carrier of merchandise. She has proved very popular with Americans traveling abroad, particularly to members of congress and other government officials who have enjoyed her luxurious equipment under the most favorable terms.

Probably never before in the history of the country have so many senators and representatives traveled abroad at so little expense. Officials of the Emergency Fleet Corp., which operates the LEVIATHAN, do not admit this fact. But it is an open secret in Washington that a member of congress open to conviction regarding the value of the merchant marine, which would perpetuate many jobs, receives concessions in the matter of fare that makes a transatlantic trip now not only desirable but within the reach of all statesmen.

The Pennsylvania railroad has placed an order for a tugboat with the Sun Shipbuilding & D. D. Co. This boat involves about 150 tons of steel.



# Palmer Tells Some Plain Truths

Continued Government Operation Will Ultimately Cost \$40,000,000 a Year—Same Service Could Be Maintained by \$15,000,000 a Year Aid to Private Operators

ON JUNE 26, before the national foreign trade convention held in Seattle, President Palmer of the Emergency Fleet Corp. delivered a dispassionate, calm, reasoned and logical account of his stewardship in office and suggested a program for the government-owned fleet.

He said in substance and in part: After looking over the entire situation upon taking charge I shortly came to the conclusion that the main trouble with the government-owned merchant marine was that it was suffering from too much easy money instead of getting down to real business and trying to come somewhere near living within its income, it was depending unduly upon the national treasury. Therefore, it seemed best to reduce the appropriation covering operating losses from forty-two million dollars to thirty million for the present fiscal year, while doing the same amount of business as last year, and to cut it again to twenty-four million for the fiscal year beginning next month. We are planning a further cut to eighteen million dollars for the following fiscal year, and we will continue this policy of reducing operating losses with improvement of services while the country at large is endeavoring to arrive at some constructive policy in the matter of the merchant marine as a whole.

## Operating Costs Reduced

A little more than a year ago we were operating about 320 cargo vessels at a loss of more than \$25,000 per voyage. During the first 10 months of the present fiscal year, beginning July, 1924, the average loss was reduced to about \$20,000, and at the end of this period it had fallen below \$17,000. We regard the improvement already made as merely a beginning. After a careful analysis of all the factors in the case, we feel that the loss per voyage of the government-owned cargo fleet can be reduced to about \$8500. This, however, does not include interest and depreciation charges, which must be included if proper comparison is to be made with private operating results, and these two items would increase the prospective voyage loss to about \$13,500.

There is, however, the question of

replacements that has to be considered in any plan of continued government operation. What would a replacement program cost the government? Taking an active fleet of 300 cargo vessels as a basis of our consideration, and assuming that a few of the lines comprising, say, 50 vessels, will be disposed of to private interests, there would remain about 250 vessels to be replaced, in due time, by the government. We have a conversion program under way by which about 50 steamers of the laid-up fleet will be reconditioned within the next three or four years, with diesel motors, electric auxiliaries and modernized equipment throughout. These motorships will be substantially new vessels and the conversion program may, therefore, be regarded practically as a partial replacement program; thus the number of steamers to be replaced would be reduced to 200 and the average replacement would be about 20 vessels per year when the replacement program is fully under way. Their cost probably would average about \$1,000,000 each. Therefore, the total cost would average about \$20,000,000 per year for new construction for the cargo fleet alone.

As for passenger liners and combination passenger and cargo vessels of which we are operating a total of 15, the replacement cost would range from \$5,000,000 to \$15,000,000 per vessel, and would average probably \$10,000,000 a year.

With the improved administration and higher efficiency toward which we are working, the operating loss of this fleet may be reduced to about \$10,000,000. Therefore, the prospective cost of continued government maintenance of a fleet of about the present size is about \$40,000,000 a year.

## Aid to Private Operators

Our study of 1200 voyages to all parts of the world in a 12-month period indicates that, if under the best practicable operating conditions the fleet corporation losses (including interest and depreciation) were \$13,500 per voyage, the average private American owner of this tonnage could reduce that loss to about \$4500. Further the same fleet on similar services, if operated under British conditions, would about break even. In

other words, the differential between the operating results of government-owned and privately owned vessels is estimated to be about \$9000 per voyage; while the differential between operating results of private American and British vessels, operated with equal efficiency, is believed to be about \$4500. In exceptional cases exclusive financial and industrial connections here and abroad may change this amount considerably.

This last figure, \$4500, may be taken as an approximate measure of the amount of government aid that would be required to place American vessels on a competitive footing with British vessels. For a cargo fleet of the size of that operated by the fleet corporation, about 2,500,000 deadweight tons, this aid would amount to about \$5,000,000 a year, and extending this to include all American cargo vessels in foreign trade, the total might amount to \$7,500,000. Passenger and mail liners are usually aided by means of mail subventions, or subsidized on the basis of naval defense requirements. Probably such aid would need to be somewhere between \$5,000,000 and \$10,000,000 a year, or say \$7,500,000. Thus it would appear that the total amount of government aid necessary to put the American merchant marine in foreign trade on a competitive footing would be about \$15,000,000 a year.

To summarize, our country faces three alternatives in respect to the merchant marine in foreign trade: first, continued government operation costing ultimately around \$40,000,000 a year; second, government aid to private shipping amounting to about \$15,000,000 a year; or third, the gradual but certain disappearance of our flag from the international trade routes, and a return to our prewar condition when less than 10 per cent of our foreign commerce was carried in American vessels.

## Encourage Private Ownership

A private owner has numerous advantages over a government operator of shipping, not only in his ability to keep his expenses low but also in getting more cargo and revenue. Then there is another very important distinction to be made between private and government-owned lines. The private organization, from its



president down through the ranks, is imbued with the spirit to make its enterprise profitable to the stockholders. Every official and every employe knows that his job depends upon his doing his part to produce dividends. He knows, too, that success will bring its reward in promotion and security of position. On the other hand, the personnel of a government-owned line cannot help but feel that the national treasury is behind it, which feeling is not conducive to rigid economy and the highest efficiency; and the employes lack the definite prospect of reward for service and the security of position which appeal so strongly to men of ambition and ability.

The differential of about \$4500 between the operating costs of private American and British vessels may be largely offset by the extremely favorable terms on which American operators can purchase vessels today; but in the long run it is not going to help the situation to sell our lines at nominal prices in consideration of a guaranteed operation for a period of, say, five years, unless government aid shall

be forthcoming before the end of such period. I do not want to be understood as discouraging the prospective purchasers of our lines; on the contrary, I think we should encourage such sales for the reason that the private operator can be depended upon to make a much better showing on the routes than the government can, and I do not think he stands to lose; but I do want to emphasize the necessity of adopting an adequate and workable scheme of government aid without further delay.

#### Follow a Definite Plan

The program, so far as the government-owned fleet is concerned, should, I believe, include the following:

(a) An aggressive and well thought-out plan to transfer the government fleet to private ownership on terms that protect the government interests and at the same time give the buyer an opportunity for profit that will insure his continuance indefinitely in the trade.

(b) Continuance of the operation of government lines on such of the trade route as are considered eco-

nomically essential to the national interest and which cannot be disposed of to private operators.

(c) Continued improvement of these lines until they show the best economic results obtainable under government operating conditions, thereby reducing the present operating loss by half.

(d) On the most heavily losing routes, the maintenance of only such service as may suffice to hold a position in the trade and to conserve our national trade interests; but, on the more promising routes an expansion of the services to meet the demands and prospects of the national trade.

(e) Where sales are impossible, the charter of the lines to private responsible operators, if practicable, on terms that will be advantageous to the government and that will give the operator an opportunity to become eventually an owner.

I will not now suggest the form of the aid that should be given the privately owned merchant marine. This is a problem that must receive the earnest attention of the entire business community and of congress.

## Condensed Reviews of Latest Books

*Combustion in the Power Plant*, by Thomas A. Marsh, M. E., 255 pages, published by D. Van Nostrand Co., and furnished by MARINE REVIEW for \$2.00 net and in Europe by the Penton Publishing Co., Ltd., Caxton House, London for 10 shillings net.

Though intended primarily as a guide for proper combustion in the power plant ashore, and devoted largely to coal burning, this book is full of excellent practical information on how to burn various kinds and grades of coal with the greatest efficiency.

Not only the nature of the fuel but also the appliances used in burning it are thoroughly reviewed, analyzed and practical conclusions of value established. Any engineer whether in charge of a power plant ashore or the engine room of a ship would find this book both interesting and instructive.

### A New Marine Handbook

"Westinghouse Apparatus for Marine Application" is the title of a 528-page book just issued by the Westinghouse Electric & Mfg. Co., East Pittsburgh. This book is the first of its

kind ever issued by any manufacturer on the application of mechanical, steam, and electrical apparatus for marine application.

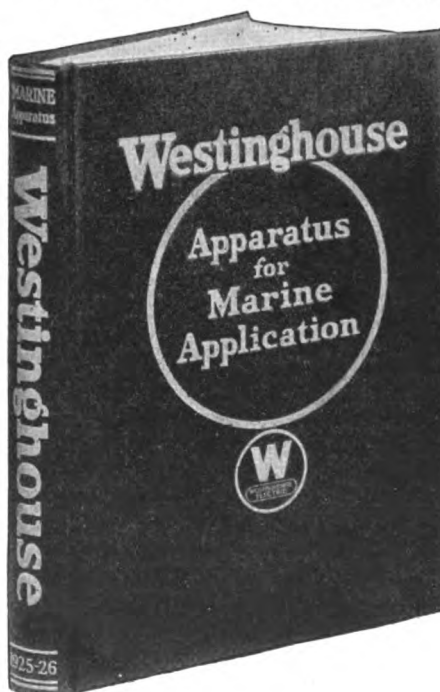
In addition to a complete descrip-

tion of the diesel electric, turbine-electric and turbine-gear drive and apparatus this book contains complete mechanical, steam and electrical data which is of special interest to the engineering and chief operating personnel of the marine industry.

The comprehensiveness of this book is best suggested by the index of 23 sections, which are as follows:

Section 1, Useful notes on navigation and steamship; 2, trade information; 3, general tables; 4, mechanical data; 5, fuel and lubrication; 6, steam data; 7, electrical data; 8, spare parts; 9, propulsion equipment; 10, generating equipment; 11, steam condensing equipment; 12, switchboard equipment; 13, distributing equipment, insulating materials and supplies; 14, deck auxiliaries; 15, engine-room auxiliaries; 16, equipment for shipyards and docks; 17, electrical appliance, fans and lighting equipment; 18, galley, bakeshop and repair equipment; 19, radio equipment; 20, electric dredging equipment; 21, drydock equipment; 22, government equipment; 23, marine service.

From a brief survey, it appears that this publication will become a refer-





ence book for the marine industry. There is believed to be no text book in existence at the present time, which contains all the data published in it. G. H. Froebel, manager of the Westinghouse marine department, under whose direction and inspiration this book was compiled, deserves great credit for originating this publication for the marine industry.

*Port Development*, by Roy S. MacElwee; cloth, one volume, 455 pages, 6 x 9 inches; published by the McGraw-Hill Book Co. Inc., and furnished by MARINE REVIEW for \$4.00 net postpaid and in Europe by the Penton Publishing Co. Ltd., Caxton House, London for 20 shillings net.

The author of *Port Development* is the commissioner of foreign trade and port development of the city of Charleston, S. C. and is well known for his studies and work in connection with ports and terminals. His previous book, *Ports and Terminal Facilities* has been widely read and favorably commented upon.

In the book which is the subject of this review the author has presented in an interesting and forceful manner the reasons for the value of port development to the nation, state and city. The general features of many world ports are compared. Physical characteristics which may make one port more valuable and attractive to shipping than another is analyzed. Many of the factors of importance in upbuilding trade such as balanced cargoes, tonnage market, grain exports, rail and water rates, cost and service at the terminals of switching, lighterage and carting are discussed. Advantages of free ports are also considered.

Though shipping all over the world has been in a state of depression from which it is now but slowly recovering, interest in port development is extraordinarily keen. The reason for this is probably the growing realization of the tremendous economic value to the nation, state and city of proper port development. This book is therefore an extremely valuable contribution to the knowledge necessary for the expansion and improvement of our ports to the end that they will be efficient aids in the growth of commerce.

The relation of the national government to this problem is fully discussed and so is port administration and the relationship of ownership control and operation. Individual ports must present their advantages in competition with other ports. Details of physical characteristics, statistics, history and information is compared for many American and foreign ports.

Other factors in the success or failure of a port, such as distance to ocean, distances to important centers of trade and dry dock and repair facilities are considered. Supplementing this are other matters such as the kind of cargoes whether balanced or unbalanced rail connections and rates.

Another important subject is the competition at terminals due to varying conditions of lighterage carting, belt railways, loading and discharging and warehousing. In part four the author discusses the free port as an institution fully describing its functions and advantages. This is followed up by accounts of actually operating free ports in several European countries.

It would be difficult to conceive of a book of more vital importance to any shipping man who is seriously desirous of rounding out his own more or less limited local experience as a help in solving his special problems with the breadth of vision that comes only with a wide and deep knowledge of the entire subject. The book is attractively gotten up on good paper and has many halftone and line drawing illustrations.

*Thayer's Pocket Book of Ship Materials and Their Uses*, by Horace Holden Thayer; leather, one volume, 386 pages, 3½ x 7½ inches; published by Simmons-Boardman Publishing Co., and furnished by MARINE REVIEW for \$4.00 net and in Europe by the Penton Publishing Co. Ltd., Caxton House, London, for 20 shillings net.

A great deal of widely diversified information, a thorough knowledge of which will help anyone connected with the building, maintenance and operation of ships, is contained in this compact pocket book. The author, a consulting naval architect and marine engineer, has arranged in this volume facts which will give the naval architect, the marine superintendent, superintending engineer, port captain and deck and engineer officers a better understanding of the qualities and proper uses of the many varied materials required in the building and upkeep of vessels.

The factors that are of the most importance and require careful investigation are fully covered. In this way the reader obtains a better sense of proportion in writing specifications and in calling for tests needed to obtain best results. Among the general headings under which detailed information is given may be numerated, steel and iron, metals and compositions, piping, lumber, substitutes for wood, calking materials, canvas, deck coverings, cement, insulation, packing, rope, wood preservatives, galvanizing,

bituminous and other paints and launching lubricants. This book is not intended to replace technical hand books but is supplementary to such in that it goes into details on all kinds of materials much more fully. Altogether it is a valuable contribution to the art of building and maintaining ships intelligently and efficiently. This book should therefore be included in the reference library of all engaged in the work it covers so that they may be posted on the latest and most efficient practice.

## Honolulu Towboat Man Sails Home in New Tug

Mr. Young was born in San Diego, Calif., in 1881. He went to Honolulu with two brothers 24 years ago. They



JOHN A. YOUNG

there established the firm of Young Brothers and entered the towing business. Tugs of this company meet incoming steamships and take off the first class mails, handle the pilots to and from ships and perform all the



army transport towing. They have recently added a very large seagoing twin screw diesel tugboat to their fleet. This boat has been christened the MAHOE. She will be used for bringing in ocean barges loaded with fresh pineapples from the plantations located on the various outlying islands in the Hawaiian group. Mr. Young with several others sailed on the new tug for Honolulu from Seattle, taking 14½ days to make the trip.

## Makes Record Voyage N. Y. to San Francisco

After an exceptional run of 23 days from New York to San Francisco, 5323 miles—five days of which was in one of the worst storms on the Pacific in some years—the recently reconditioned oil burning ocean going tug MAOI reported in San Francisco to the Matson Navigation Co. She was reconditioned as an oil-burner by Gibbs Brothers, Inc., and the work was done in the yards of the Todd Shipyards Corp., New York.

The MAOI was formerly the MOOSITAUKA, an 11-knot, steel, ocean going tug of 150 feet overall, 27 feet 6 inches beam and 14 feet 1 inch draft forward and 15 feet 9 inches aft when in full load condition. As an oil-burner she will carry 200 tons of fuel oil. She is equipped with an inverted, direct-acting, triple expansion reciprocating engine with cylinders 17 inches, 25 inches and 43 inches diameter with stroke of 30 inches. The normal horsepower is 800 but 1000 horsepower may be developed. Steam is furnished at a working pressure of 180 pounds by two Scotch boilers, 11 feet 6 inches inside diameter and 12 feet long over the heads, having a heating surface of 1550 square feet each.

Space formerly arranged as coal bunkers between frames 22 to 38, was rearranged as oil bunkers, subdivided into three separate tanks. The non-watertight bulkhead on frame 38 was removed and replaced by a bulkhead oiltight up to the flat and watertight up to the main deck. The boilers were fitted with the Todd type of burner of the mechanical atomizing type with turbine blower for each two burners, working in conjunction with adjustable air registers under natural draft conditions, when desired. Diamond soot-blowers of back connection type were installed for each tube nest of boilers.

On her dock trial and trial run the MAOI worked perfectly and put to sea immediately after under command of Captain Phillips of the Moran Towing

& Transportation Co., New York. Her run of less than 23 days to San Francisco, including the necessary delay at Panama and the single stop at San Pedro for water, constitutes a record, it is believed.

Upon arrival and delivery at San Francisco she was stated to be in as



MATSON TUG MAOI AT SAN FRANCISCO  
AFTER RECORD RUN

perfect condition as the day of her dock trial in New York. She was ready immediately to turn about and put to sea and sailed on the day she arrived for Seattle where she took a tow to Hawaii, which considering the strenuousness of her service was a creditable performance.

## American-Hawaiian S. S. Co. Elects Officers

Cary W. Cook, for the past two years president of the American-Hawaiian Steamship Co. and who has been identified with the company for over eighteen years, resigned on June 4 and accepted the position as chairman of the board of directors.

Roger D. Lapham, who has been treasurer, was elected president in Mr. Cook's place. He entered the service of the company in 1905 and prior to the war was successively agent at Seattle, Los Angeles and assistant traffic manager at San Francisco. In 1917 he entered the army and saw active service as captain in the seventy-seventh division. On his return to San Francisco he became a member of the firm of McCormick, McPherson & Lapham. When the American-Hawaiian Co. transferred its headquarters from New York to San Francisco in 1923 he was named treasurer.

There will be no change in either the policy or personnel of the company from that obtaining under Cook's presidency, according to Lapham, who said: The directors accepted Mr. Cook's resignation with much regret and only because of his insistence that he be relieved. They appreciated that when he took office on March 20, 1923, he assumed responsibilities he

was in no way obliged to. His former relations with the company, his wish to see it regain its dominant position, and his friendship for many serving or interested in the company were the things which made him willing to put his shoulder to the wheel at a time he did not have to.

John E. Cushing, traffic manager, was elected treasurer and will fill both positions.

## Examination To Be Held for Material Supervisor

The United States civil service commission announces an open competitive examination for war material supervisor. Receipt of applications will close July 21. The examination is to fill vacancies in the bureau of public roads, department of agriculture, for duty in the field, at entrance salaries ranging from \$3000 to \$3600 a year.

The duties are to inspect, pack, crate, and ship surplus materials suitable for roadbuilding, including motor vehicles and trailers, cranes, locomotives, railway cars, steel buildings, ship machinery and tools, road machinery, rails, structural steel, and explosives.

Applicants must have had at least three years' experience in handling, crating, packing and shipping heavy materials, such as those listed in the above statement of duties, including at least one year's experience in a supervisory position demonstrating ability to handle a force of men successfully.

Competitors will not be required to report for examination at any place, but will be rated on their education and experience, and a report to be filed with the application. Full information and application blanks may be obtained from the United States civil service commission, Washington, or the secretary of the board of United States civil-service examiners at the post office or customhouse in any city.

The ferryboat Hampton Roads, building by the Pusey & Jones Co. Wilmington, for the Chesapeake Ferry Co. Norfolk, was launched on May 23. The ferryboat is 200 feet long. The hull is built of steel. The propelling power consists of double compound reciprocating engines. The new vessel will run between Sewall's Point and Newport News.

A new river diesel tanker for service on the Sacramento and San Joaquin rivers for the Union Oil Co., was launched early in June at the yards of the Moore Drydock Co.



# Diesel Electric Ship Works Fine

Owners of Tanker Van Dyke After Trial Trip Are Enthusiastic—Several Independent Generating Units Insure Reliability—Bridge Control Gives Accuracy

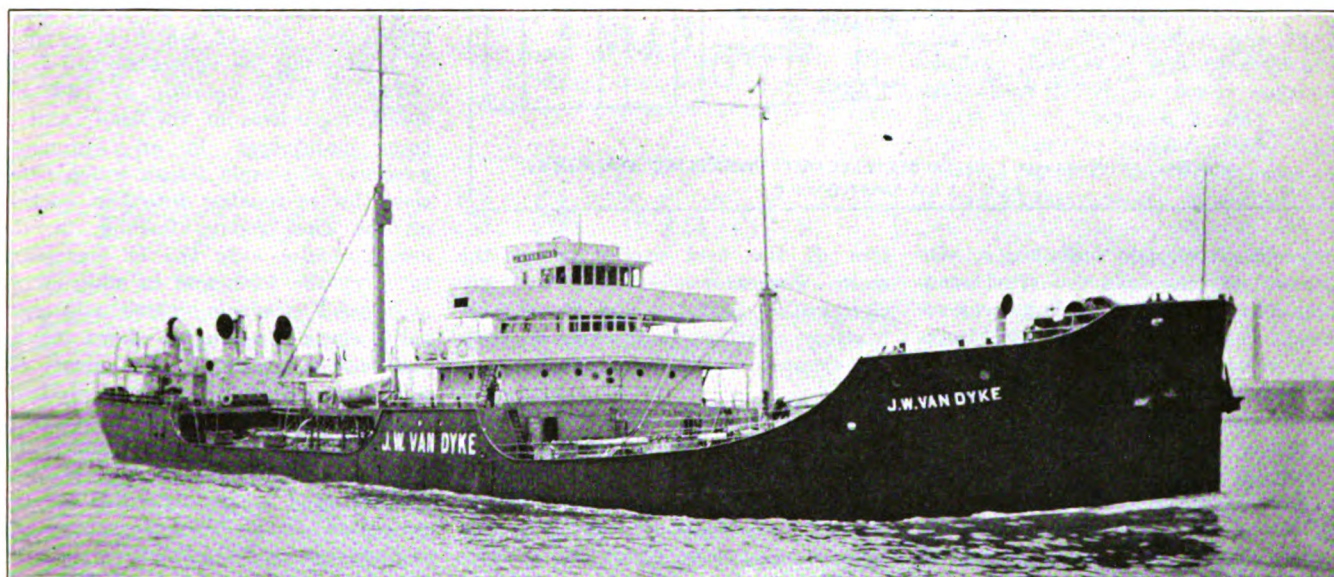
THE installation of a Diesel electric drive in the 7500-ton tank vessel J. W. VAN DYKE, owned by the Atlantic Refining Co., is of particular interest at this time when shipowners throughout the world are turning their attention to the internal combustion engine as a substitute for steam in the propulsion of cargo and passenger vessels. Departing from the direct diesel drive, the diesel electric combination was selected for this vessel with the object of providing independent multiple units for generating electric power to operate an electric motor direct-connected to

which they may be spread over the comparatively large installations found in passenger vessels, it is to be expected that this method of propulsion will find favor for any type of vessel.

Highly successful application of the diesel electric principle to a number of smaller vessels, particularly tug boats, where the necessity of absolute control for rapid maneuvering and extreme flexibility of drive are of prime importance, has demonstrated, beyond a doubt, the desirability of this type of drive for vessels destined for use in river and harbor work. After

N. Y., under the direction of L. M. Goldsmith, of the Atlantic Refining Co. Development of the plans for converting the VAN DYKE, and the carrying out of the various steps in the installation, were facilitated by the co-operation of the officers of the shipping board, who have made every effort to assist in bringing the work to a successful conclusion.

Of approved tanker type the hull has 11 cargo tanks and eight summer tanks, with pump room amidships and propelling machinery aft; the Isherwood system of longitudinal framing is used throughout. The



THE TANKER VAN DYKE RECENTLY CONVERTED FROM STEAM TO OIL ENGINE ELECTRIC DRIVE STARTS ON MAIDEN VOYAGE FULLY LOADED—SAID TO HAVE THE LARGEST INSTALLATION OF THIS TYPE OF PROPULSIVE POWER IN A MERCHANT SHIP

the propeller shaft. With its lightweight units as compared to the heavy direct diesel, this arrangement is particularly adaptable to the conversion of vessels now equipped with steam-driven propelling machinery, and with its economical features of installation and operation, should prove a valuable element in the development of our merchant marine to meet the keen competition of foreign shipping.

Completion of the sea trials of this vessel, which is the largest in point of tonnage yet converted to the diesel electric drive, bears out the judgment of the designers and thus marks an important step in establishing this type of drive in the field of large ocean carriers. In view of the element of reliability introduced by the multiple units, and the ease with

experience with this type of vessel, Mr. J. W. Van Dyke has reached the conclusion that the principle is fundamentally correct in fulfilling the requirements of ships.

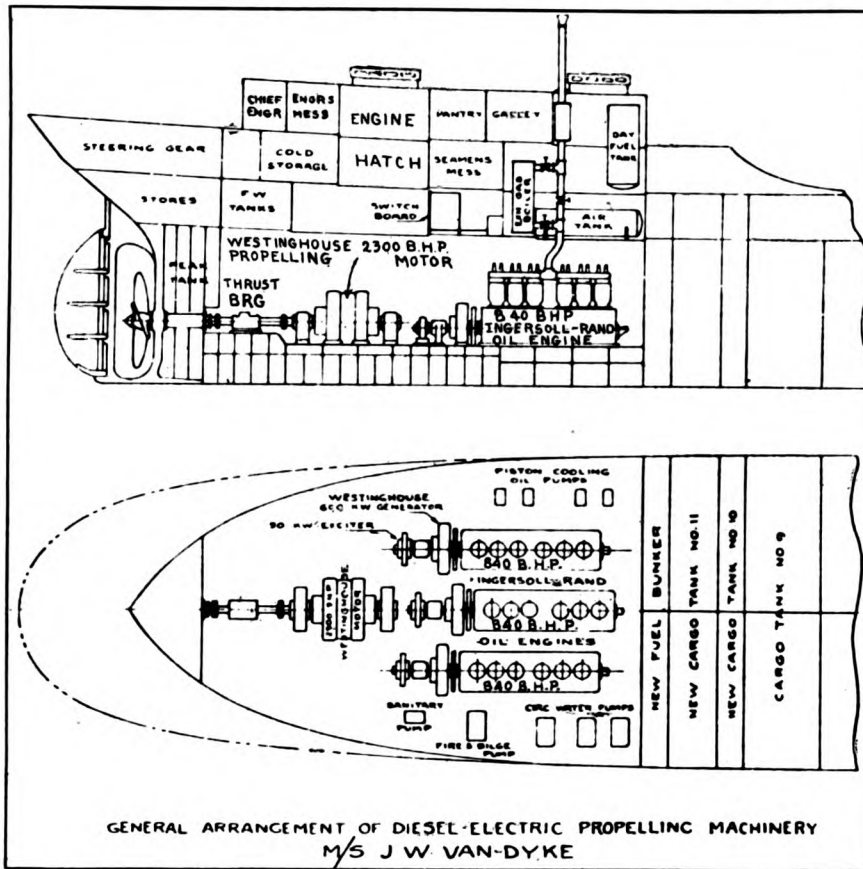
## General Particulars of the Ship

The M. S. J. W. VAN DYKE, formerly the S. S. ALLANTOWN, was purchased from the United States shipping board, to whom she was delivered from the yards of Pusey & Jones, Gloucester, N. J., in 1918. She was originally laid down for the Cunard company, but was taken over by the shipping board during the war period. The work of reconditioning the hull and installing the diesel electric propelling machinery and auxiliaries was carried out at the yards of the Staten Island Shipbuilding Co., Staten Island,

principal details are as follows: Length over all, 380 feet; length between perpendicular, 365 feet; molded beam, 50 feet, 9 inches; molded depth, 31 feet, 3 inches; block coefficient, 794; capacity, 60,000 barrels; speed, 11 knots. It is interesting to note that the capacity was increased by 5400 barrels as a result of the new machinery installation.

Originally the propelling machinery consisted of a General Electric turbine of 2400 shaft horsepower, driving a single screw through a set of double reduction gears. Steam for propulsion and auxiliaries was supplied by three water tube boilers. With the removal of this equipment, the screen bulkhead between the boiler and engine room was cut out, giving a single compartment for the





entire diesel electric installation. On account of the reduced fuel consumption, the fuel oil tankage was reduced, a part of the original tanks being released for cargo.

The general arrangement and operation of the propelling machinery may be briefly described as consisting of a multiple generating plant made up of three independent electric generating units, which supply current to a main drive motor directly connected to the propeller shaft. Control is operated from the pilot house by varia-

tion of the field excitation on the main generators. Auxiliaries are electrically operated and steam for heating quarters is produced from the exhaust of the diesel engines.

#### Main Generating Plant

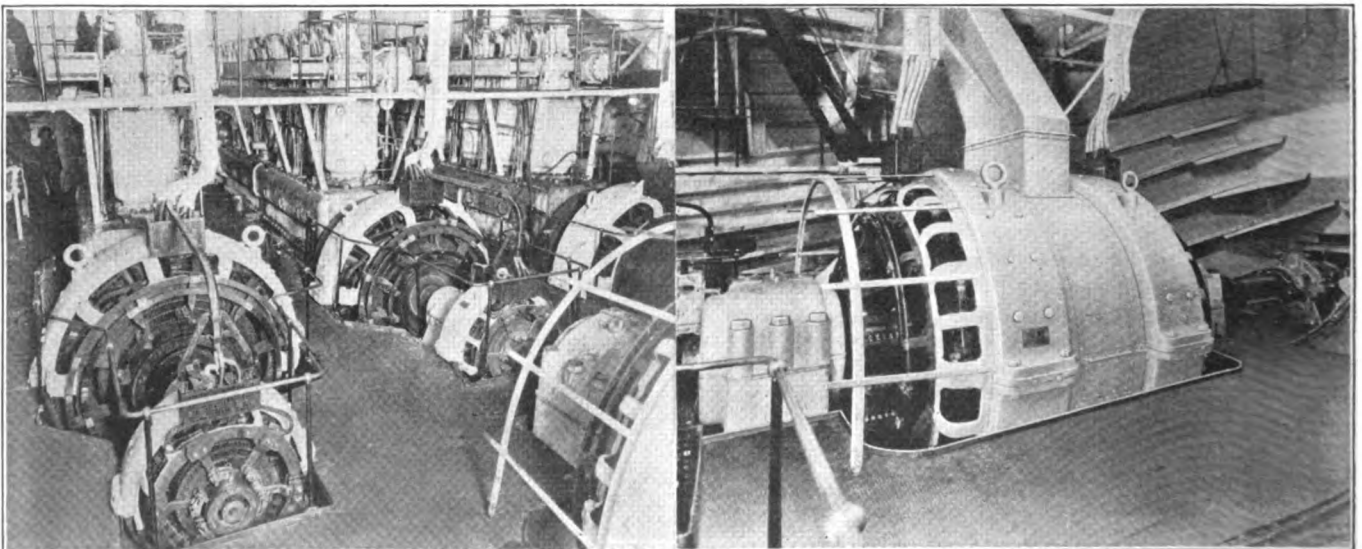
There are three generating units, each consisting of a six-cylinder 19½ inches by 24 inches four cycle, single acting, Price-Rathbun solid injection type diesel engine, built by the Ingersoll-Rand Co., developing 840 brake horsepower at 225 revolutions per

minute, directly connected to a 600 kilowatt, 250 volt Westinghouse direct current generator with a 50 kilowatt exciter. The diesel engines operate at 68 pounds brake mean effective pressure with compression of 350 pounds, fuel being injected at approximately 3000 pounds pressure by a single fuel pump which supplies all six cylinders through a central distributor. This method of injection, without the use of high air pressure, eliminates a most troublesome feature. The fuel is injected into a pre-combustion chamber separated from the cylinder proper by a restricted passage, so that ignition does not take place in contact with either the cylinder walls or piston head.

There are three systems of lubrication: a high pressure system forcing oil to all bearings and wrist pins through the crank shaft; a splash feed from the crank case, and a gravity feed from overhead filter tanks, any one of which is capable of lubricating the engine at full load.

The engines operate at constant speed, regardless of the load, control being maintained by an automatic governor of simple design which functions by by-passing into the suction of the fuel pump, feeding to the spray nozzles only the oil necessary to carry the load, and in addition an over-speed governor which automatically shuts the engine down at 15 per cent over speed. Both diesel engine and generator are mounted on the same longitudinal beams, giving a very rigid construction which insures lack of vibration. The exciters are mounted on an extension of the generator shaft. The generators and exciters are cooled by natural ventilation.

Generators are connected in series



LEFT, INTERIOR OF ENGINE ROOM OF THE TANKER J. W. VAN DYKE SHOWING ALL THREE OF THE OIL ENGINE GENERATING UNITS—RIGHT, MAIN DRIVE DOUBLE ARMATURE ELECTRIC MOTOR DIRECTLY CONNECTED TO THE PROPELLER SHAFT



through the switchboard to the main drive motor, with control switches so arranged that any generator may be taken out of the circuit. In addition to supplying power for propulsion, the generators may be operated at fixed voltage to supply power to the main cargo pump motors and for overboard use. Current from one exciter is used for field excitation of both the generators and main drive motor. A second exciter supplies power for operating all of the electrically driven engine room auxiliaries and deck machinery, while the third is held as a standby for either purpose.

The ship is propelled by a 2300 horsepower 750 volt direct current double armature Westinghouse motor, direct connected to the propeller shaft through a Kingsbury thrust bearing. The motor is designed to develop full power at 100 revolutions per minute. The two armatures are independently wired so that either one may be operated without the other. Cooling is carried out by positive air circulation. The double armature drive motor provides two units of power transmis-

sion, either one of which may be out of commission without hampering the operation of the other.

A four-bladed propeller of the built-up type, with cast iron hub and bronze blades, designed by Dr. S. E. Slocum has been fitted. It is 12 feet six inches in diameter, with variable pitch.

For absolute and immediate control the diesel electric combination is ideal. As the vessel is maneuvered, the generators proceed undisturbed to produce power as it is required, with no danger of *stalling* or sticking on center. The pilot house control gives the pilot absolute command of all movement of the propeller, without any chance of delayed or mistaken signals. An added element of safety to the vessel is assured by the fact that full power is instantly available for stopping, starting or reversing, whereas in the steam or direct diesel engine drive, the power delivered to the propeller varies with the speed of the engine which must have time to pick up from its stopped position to full speed ahead or astern.

to this order the same firm will also supply 8290 feet of hard drawn brass packing material and dummy and grand strip material.

Babcock & Wilcox has received the order for the 12 boilers as well as the oil burning equipment for the S. S. MALOLO. The boilers will have a total evaporating surface of 55,764 square feet and a total superheating surface of 11,160 square feet. The working pressure is to be 280 pounds at 100 degrees Fahr. superheat. These boilers will be tested under hydrostatic pressure of 560 pounds per square inch while still in the shop. There will be 6 burners for each boiler. The oil burners will be of the Cuyama design of the mechanical atomizing type working in conjunction with adjustable air registers.

A steam steering gear operating on 150 pounds steam pressure and capable of withstanding full boiler pressure of 280 pounds will be installed. The gear will consist of a right and left hand screw connected to a cross head of 3 feet radius fastened to the rudder stock. The steering engine will be operated by a hydraulic telemotor controlled from the bridge. There will also be an electric control actuating the telemotor ram in the steering engine room, fitted with a follow-up gear consisting of a Sperry-gyro pilot apparatus with stand which will operate the piston rod of the after hydraulic ram through a rack and pinion extension driven by the gyro motor connected by a clutch.

In water tight subdivision the S. S. MALOLO will be at the very forefront of best naval architectural practice. The system of water tight doors in bulkheads is, therefore, of great importance. There will be 15 of these water tight doors in various bulkheads and they will be hydraulically operated by control from the bridge. Seven of these doors are to be of the vertical type and nine of the horizontal type and all to be operated with the Stone Co. patent system of control. The order for these doors will also include supplying the necessary pumps and gears for hand operation as well as all copper piping, bridge indicator gear, electrical and mechanical warning bells and all other equipment necessary to operate the doors under control from the bridge of the ship.

The Pendleton shipyards at Mystic, Conn., which years ago was one of the best known wood shipbuilding plants in this section, has been sold to Morris Levinson of Newburgh.

## Progress of S. S. Malolo

**R**EPORTS from Gibbs Bros., Inc., supervising the construction of the S. S. MALOLO at Wm. Cramp & Sons shipyard show that progress on this vessel is considerably beyond scheduled expectations. The keel, as reported in the last issue of MARINE REVIEW, was laid on May 4. At the end of May over 751 tons of steel had been erected in place. Some of this work which is 75 per cent completed was not scheduled to be ready until the latter part of July. The rapid progress made so far is due to the advanced work on the plans and the large accumulation of prepared material alongside, forged, punched and ready to be placed into position.

### Orders Placed

Orders have already been placed for numerous parts and accessories to the main vessel. The Federal Steel Foundry, Chester, Pa., received the order for the stern post and for the stem of this vessel. The stern post has already been delivered and this single casting weighs over 39,000 pounds and contains 80 cubic feet of cast steel.

Bethlehem Steel Co. has received orders for the shaft and turbine forgings for the S. S. MALOLO. The shafts will be open hearth steel forgings,

in accordance with the American Bureau of Shipping and Lloyd's requirements. In the order there are 2 propeller shafts, 1 spare propeller shaft, 10 line shafts, 2 couplings, 2 collars, 2 thrust shafts and 2 intermediate shafts. The total weight of all the shafting is 26 tons. The turbine forgings are of open hearth carbon steel annealed, of 70,000 to 80,000 pounds tensile strength per square inch with an elastic limit of not less than 50 per cent of the tensile strength. These forgings consist of 52 pieces and aggregate over 30 tons in weight. There will be 6 rotor forgings, 10 rotor wheel forgings, 4 rings and 24 coupling rings, 6 rotors and 4 end drives. Bethlehem thus has received a total order of 56 tons of shafting and turbine forgings for this big ship.

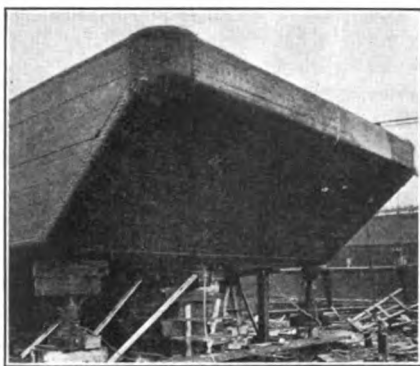
An order for 7490 feet of monel metal for packing, shrouding and binding for the S. S. MALOLO has been awarded to the Whitehead Metal Products Co., Philadelphia.

American Brass Co. has received the order for the blading material for the big steam turbines of the S. S. MALOLO. In this order is included 4035 feet of hard drawn brass blading material, 1860 feet of monel metal blading and 5600 feet of manganese copper blading. In addition



## Channel Steel Barges Come to New York

The Ellis channel system of steel hull construction has opened an headquarters office at 30 Church street, New York, in charge of G. K. Boland. Ellis hulls were chosen by the New York Central railroad for 10 barges now under construction by the Atlantic Works, Inc., East Boston, Mass. It is expected that the first delivery on this order will be made



ONE OF THE NEW YORK CENTRAL BARGES BUILT UNDER ELLIS CHANNEL STEEL HULL CONSTRUCTION, AT ATLANTIC WORKS, INC., EAST BOSTON, MASS.

to the New York Central in July in New York.

Mr. Boland expects to arrange for an inspection of the New York Central barges in July for all owners, naval architects and others who may be interested in the advantages of the Ellis hulls. The system is patented in America, Great Britain and Canada and other patents are pending. Mr. Edgar Ames is sole licensee. Among the advantages claimed for Ellis hulls are great deadweight capacity, simplicity—meaning low cost of construction with special adaptability to quantity production, and lastly, low maintenance.

## Penna. Railroad Orders Barges and Tugboats

Contracts for eight steel car floats, seven covered wooden barges and two steel harbor tugboat hulls, to be used in the company's marine operations in New York harbor and on Chesapeake Bay have been placed by the Pennsylvania railroad.

The Sun Shipbuilding and Dry Dock Company, Chester, Pa. will build the eight steel car floats.

Two of the floats will be 145 feet long, with a 36-foot beam and 10-foot depth; two floats 250 feet long, with a 34-foot beam and 9-foot depth, and two floats 330 feet long, with a 38-foot beam and a 10-foot 6-inch depth.

The two other car floats are to be larger and heavier, and will measure 358 feet long, with a 47-foot 2-inch beam and a 12-foot 6-inch depth.

The seven covered wooden barges will be built by Ira S. Bushey & Sons, Inc., of Brooklyn, N. Y. will be 100 feet long, with a 30-foot beam and a 9-foot 6-inch depth.

The Newport News Shipbuilding and Dry Dock Company, Newport News, Va., will build the two steel tugboat hulls, which are designed for New York harbor service. These hulls will be 105 feet long, with a 24-foot beam and a 14-foot depth.

## Two Large Diesel Jobs at Sun Shipbuilding Co.

Orders for electrical marine equipment, including generators, motors and deck auxiliaries, for two big ocean-going vessels now being converted by the Sun Shipbuilding Co., Chester, Pa., have been received by the Westinghouse Electric & Mfg. Co. The value of the equipment, which is to be installed on the motorships EAST INDIAN and GULF OF VENEZUELA aggregates nearly \$100,000.

The EAST INDIAN, a freighter of 12,500 tons deadweight was purchased from the United States shipping board by Henry Ford, is reported to be the first of a fleet of large vessels to be reconditioned by the automobile magnate to handle the export business of the Ford Motor Co. In addition to a general overhauling at the Sun yards the vessel is being converted into a motorship, the main drive consisting of Sun-Doxford diesel engines of 5400 indicated horsepower. Included in the electrical equipment for this vessel are all the motors required for the operation of the fuel oil and bilge pumps, the lubricating oil, fire, fresh water, general service and sanitary pumps as well as the air compressors and the ships steering gear.

Practically the same type of Westinghouse marine equipment is to be furnished for the motor tankship GULF OF VENEZUELA formerly known as the S. S. MISKIANZA. The latter vessel is a 10,000-ton tanker originally built by the Moore Iron Works, San Francisco and recently purchased by the Gulf Refining Co., Phila. The contract for the reconditioning of the vessel and its conversion into a motorship with Sun Doford diesel engine was awarded to the Sun Shipbuilding Co. The main drive will be 3000 horsepower, while the two auxiliary generating sets will be driven by Ingersoll-Rand engines, directly coupled to Westinghouse standard generators.

## International Chamber of Commerce Meets in Brussels

American steamship interests are preparing a strong fight against the plans of the British and Japanese delegates to the International Chamber of Commerce meeting in Brussels in June to place that organization on record against protective coastwise laws throughout the world.

The coastwise committee of the American Steamship Owners association met recently at the offices of the Fall River Line, New York, to discuss the situation. While it was said that no definite plans had been made, it is understood that the association will name several representatives to attend the conference in Brussels.

Reports from the Pacific Coast also indicated that steamship men there were aroused, particularly by the efforts of the Japanese lines to gain an entrance into the intercoastal trade, and would take up the matter officially.

Inquiries among steamship officials developed the opinion that while a resolution on the part of the International chamber would probably have little effect on congress, they felt a determined effort should be made to prevent American delegates in general from falling into line with foreign views on this subject. It was pointed out that at previous meetings at which American shipowners were not represented resolutions were adopted declaring against all forms of national aid to shipping. In the view of local shipping men the American delegates were not fully informed on the significance of their action, and if American shipowners had been there to present their arguments the vote would not have been unanimous.

The coastwise committee of the shipowners' association is expected to meet again shortly for another discussion. One official said that every effort to break down the protection extended to American ships in the coastal trades would be contested vigorously.

Homer L. Ferguson, president of Newport News Shipbuilding and Drydock Co., has been chosen by the Atlantic Coast Shipbuilders association to represent the interests of American Shipbuilding, and H. H. Raymond, president of the Clyde Mallory line and H. B. Walker, president of the Old Dominion Steamship Line have been selected to represent the American Steamship Owners association. The American position will be maintained without question by these representatives.



# Lake Tankers Sail On Quick Turn-Around

Stores of Gasoline and Kerosene at Lake Ports—Replenished by Tanker Cargoes—From Whiting, Ind.

BY E. C. BARRINGER  
Associate Editor, *Marine Review*, Chicago

**U**P AND down Lakes Michigan, Superior and Huron they ply their trade—these black and red gasoline and kerosene carriers of the Standard Oil fleet—set apart by their red flags by day and their red lights by night. Set apart, by federal regulations but not regarded as marine pariahs. In the entire history of the Great Lakes' gasoline and kerosene trade, no man has lost his life, and ship for ship these fresh-water tankers will match in speed, turn-around, economy of operation, comfort, and morale the finest of the iron ore and coal freighters.

Compared with most of the other trades on the Great Lakes, the bulk

greatest strides have been made since 1912, when the Standard Oil Co. of Indiana took over the steamer *RENOVN* and *BARGE 85*, now known as *BARGE C*. This fleet has since been supplemented by the construction of the steamer *WILLIAM P. COWAN* and the purchase of the shipping board tug *OUTAGAMIE*.

But while young in years, this trade in petroleum products has grown rapidly. In a normal ten-month season this Standard Oil fleet of two steamers and a barge will carry approximately 1,700,000,000 gallons of gasoline which, figured at 15 miles to the gallon when used in motor cars would provide 25 billion miles of transporta-

In popular opinion, gasoline might seem to be a spectacular and hazardous cargo, and while it can never be less than gasoline, with the exercise of proper precautions there is a minimum of danger. To this the unblemished record of the fleet attests. The tanks are equipped with vent valves to relieve the pressure of the gases. No open lights are permitted aboard ship. Smoking is rigidly restricted to the crew's quarters. A five-foot cofferdam of water just forward of the fuel oil tanks on the *COWAN*, for example, serves as a barrier between the cargo and the fireroom. As an evidence of safety as well as all around agreeable working conditions, there was a turn over of only six men in the entire fleet in 1924.

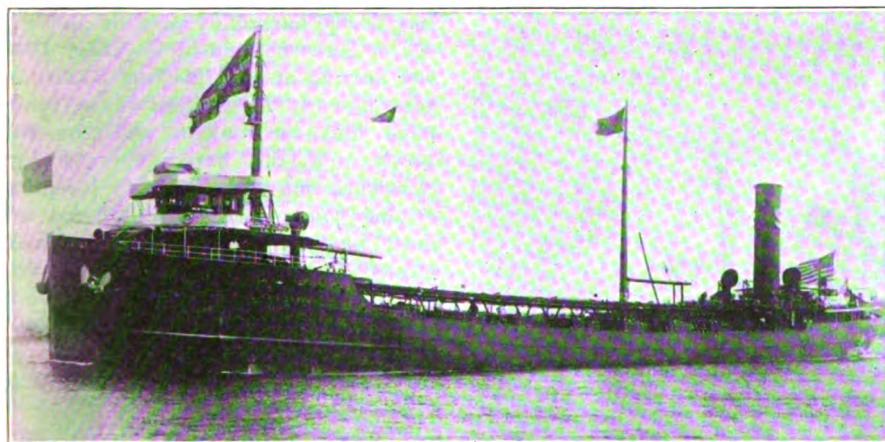
## Cargoes Are Taken On At Whiting

Whiting, Ind., or more accurately the Standard Oil dock on the Indiana harbor ship canal two miles to the east, is the nub and kernel of this trade. Gasoline and kerosene are pumped to the dock through separate 12-inch lines and are forced aboard ship through three 6-inch specially armored and protected hoses. Cargoes are taken for River Rouge (Detroit), Superior, Green Bay, Muskegon and Bay City. At these points are located the Standard Oil tank farms from which the gasoline or kerosene is distributed. It is entirely a one-way trade, the fleet returning in ballast. There are no mixed cargoes, although this would be physically possible.

Formerly more gasoline and kerosene went from Whiting to Superior than any other point but the great growth of the automobile industry has



Barge "C" of the Standard Oil Co. of Indiana and tug Outagamie—Capacity of barge is 700,000 gallons



TANKER WILLIAM P. COWAN—FOR LAKE SERVICE—LENGTH 434 FEET 8 INCHES—CAPACITY 2,700,000 GALLONS

freighting of gasoline and kerosene is young. It goes back to 1895, when the Standard Oil Co. of New York operated a steamer or two and a barge. The

tion. In addition, in this ten-month season, the fleet delivers about 50,000,000 gallons of kerosene, or illuminating oil, as it is preferably called.



forced Superior to bow to the River Rouge. Cargoes are limited not by the capacity of the steamers and the barge but by the depth of harbors. The fleet loads to 19 feet for River Rouge and Superior, 17 feet for Green Bay and Muskegon and 13 feet for Bay City. The COWAN has a capacity of 2,700,000 gallons, the RENOWN 1,750,000 gallons and the BARGE C 1,700,000 gallons.

Into the COWAN, flagship of the Standard Oil fleet, has been built the best experience and thought of the Great Lakes petroleum trade. From pilot house to engine room she is one of the best equipped steamers on the lakes. An automatic sounding machine, with an automatic warning in shoal water, a gyroscopic compass, a course recorder and a receiver for submarine signals are the outstanding aids. The searchlight is directed from the pilot house instead of the bridge.

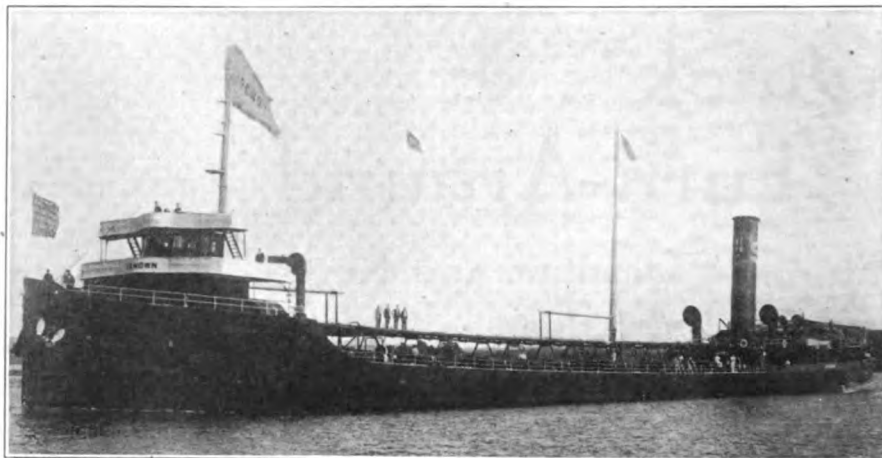
#### Particulars And Descriptions

The COWAN is 434 feet 8 inches in length with a beam of 55 feet and a molded depth of 20 feet. Her net register is 6980 tons and she has a crew of 28 men. Two tanks carry 139,450 gallons of fuel oil for her three Scotch boilers. Steam is carried at 185 pounds pressure for her triple expansion engine with cylinders,  $25\frac{1}{2} \times 37 \times 64$  inches in diameter and a 42-inch stroke. She has a  $16\frac{1}{2}$  foot wheel which turns at 85 revolutions per minute. Light, the COWAN frequently logs 14.6 knots and without being pushed she will run from the dock at Superior to within a lock at the Soo in  $28\frac{1}{4}$  hours and from the Soo to

and emery wheel, double steering engine and an electric washing machine. The equipment of the RENOWN is comparable to that of the COWAN.

A bulkhead runs the length of the COWAN's cargo space, with nine tanks

The RENOWN, like the COWAN, is an oil burner. She is 394 feet long, 50 feet wide and 25 feet in molded depth. BARGE C has substantially the same dimensions as the RENOWN. The tug OUTAGAMIE, which is 150 feet long,

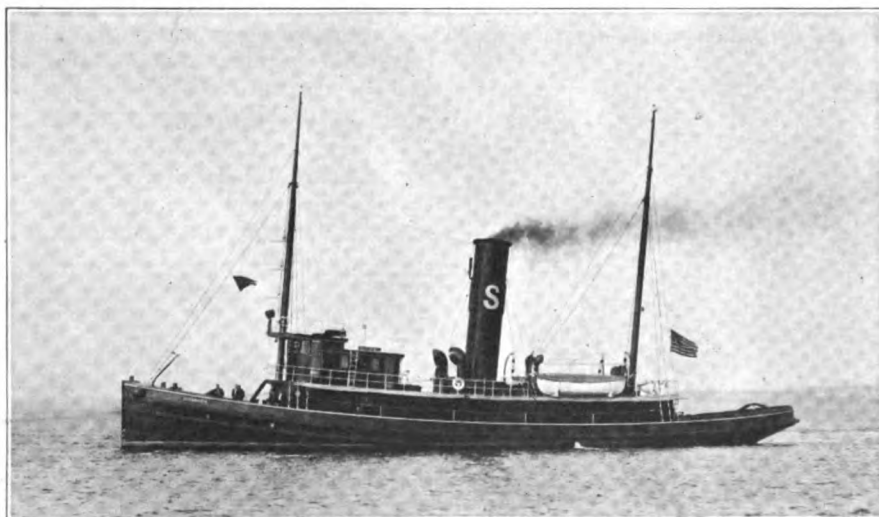


TANKER RENOWN—FOR LAKE SERVICE—LENGTH 394 FEET—CAPACITY 1,750,000 GALLONS

on each side. An eight-inch line connects all tanks. Pumps at the refinery at Whiting will put aboard a cargo of 2,700,000 gallons in 9 to 10 hours. Forward, in the COWAN, are two duplex pumps,  $14 \times 18 \times 24$  inches, which, working at 175 pounds pressure, will discharge the cargo at Superior, with the reeving tanks at an elevation, in 13 hours. This work is performed on the RENOWN by a centrifugal pump and on the barge by two duplex pumps. Cargo is never received or discharged during bad weather, as a precaution. When weather permits, the tank hatches are kept open on re-

carries a crew of 21 men, which looms large alongside the 28 men on the COWAN, the 26 on the RENOWN and the 12 on the barge. The tug is coal fired. In the course of a year, the fleet will make 150 trips out of Whiting with gasoline or kerosene. No pains have been spared to make the Standard Oil fleet comfortable for the men and tenures running back 20 to 30 years, when the older ships flew the house flag of the New York company, are not uncommon.

Standard Oil tank capacity at Superior is 368,193 barrels (50 gallons each) of gasoline and 135,266 of kerosene, at River Rouge 500,000 barrels of gasoline and 114,000 of kerosene, at Muskegon, 201,000 barrels of gasoline and 108,000 of kerosene, at Green Bay 60,000 barrels of gasoline and 46,000 of kerosene, and at Bay City 134,000 barrels of gasoline and 67,000 of kerosene. It is to keep these tanks filled that the COWAN and the RENOWN and the barge operate like clockwork out of Whiting to these receiving points. Occasionally trips are made in January. The barge is used mostly for the shorter runs. In winter, the fleet is tied up in the Indiana Harbor ship canal. All of the bulk freighting of petroleum products on the Great Lakes is done by the Standard Oil Co. of Indiana.



TUG OUTAGAMIE, 150 FEET LONG, CARRIES A CREW OF 21 MEN

South Chicago in  $22\frac{3}{4}$  hours. The COWAN's equipment includes two dynamos, two fan engines, an ice plant, a water still, a small tool room including a drill press, lathe, grinder

turn trips to dissipate the gases. The Standard Oil Co. never permits gasoline to be used for cleaning purposes, and the tanks are kept spotless by the use of water and brooms.

Funeral services for Captain Nathan Watson, 82 years old, the last of the famous yacht skippers of his time, who died June 16 at his summer home on Clark's Island, Plymouth Harbor, were held in Somerville, Mass., June 17.



# Fleet Head *Should* Negotiate Sales

Opinion in Washington Backs President Coolidge's Stand for One Man Control

BY FRED B. PLETCHER

*Washington Correspondent, Marine Review*

**P**REVAILING opinion in Washington strongly approves the attitude of President Coolidge in urging that the disposal of the laid-up fleet and other vessels of the shipping board be turned over solely to Admiral Palmer, head of the Emergency Fleet Corp., instead of intrusting the negotiations for such disposal to the divided and hence unwieldy shipping board of seven members. The President has shown wise foresight in favoring this sort of a policy, it is pointed out, and increased sales of the white elephant fleet should result and should be effected with less controversy.

President Coolidge's part in the ship sales problems has helped turn the attention of the public toward the merchant marine still more strongly. The suggestion that the ship sales be conducted in the future on a one-man basis coming from such a high quarter has more than ordinary significance. By some it is taken to mean that the President strongly favors the cutting down of the present size of the board, possibly to at least three members, and that he may even make this recommendation to congress at the next session. At this session, it appears more strongly now than ever, that the shipping situation will be one of the major questions of public interest to be taken up.

## Remove Sales Difficulties

The statement was made at the White House that the President, in making the suggestion that the head of the Fleet corporation should negotiate future sales of shipping board tonnage himself, sought to overcome the difficulties involved in making sales contracts within the present membership of the board. Authority thus designated to an individual, it was pointed out, would make for convenience to prospective purchasers of vessel tonnage, and that more assurance could be given of satisfactory negotiations for the sale of the ships. It was pointed out that shipping men, who had in mind the purchase of some of the government vessels, may have been "scared out" by the thought of having to win the approval of the seven shipping board members. The negotiations themselves with the full membership of the board also had

many difficulties. It has not been found expedient to negotiate for purchases under the present conditions.

Naturally, opposition exists in shipping board circles to the President's suggestion, even though the board would be given the final approval on deals negotiated. With the new sales policy adopted, the power of the board will begin and end with the right of approval or disapproval of the contracts, and members will have no part in the actual sales.

## Offer Vessels for Scrap

The shipping board prepared its terms of sale for the bids opened June 30 for the disposal for scrap of

Bids must be on a lump sum basis, and they are to be received on any or all of the ships. The vessels to be scrapped have a total tonnage of 817,130. Included in the group are 150 coal and 50 oil burners. Sixty-seven of the lake-type vessels are listed among those to be scrapped. The oil burners are ships of from 5070 to 5340 tons, and all the coal burners exceed 3000 tons, running to a maximum of 4165 tons. Purchasers may buy from the lot of 200 vessels at "scrap prices and convert them to diesel engine propulsion. The agreement must be to scrap or to convert to diesel equipment.

## Bids for Services Refused

The board has turned down two propositions which would have made some modifications of freighter service between the North Atlantic coast and the North Continental ports. One of these rejected proposals was submitted by the Black Diamond Steamship Corp., New York, which operates the American Diamond line of freighters from New York to Rotterdam and Antwerp. The proposal was to buy 14 freighters of 8000 tons each from the government. This proposal, the board held, would have interfered with the allocation contract with Rogers & Wells, of the Yankee line.

Another proposal turned down by the board was one in which the Transmarine Corp. and the Cosmopolitan Shipping Co. offered to take over, with their privately owned ships, the service from New York to Rotterdam and other ports now operated by the Black Diamond corporation. This proposal was conditioned upon the Yankee line service being allocated to the Transmarine Corp. and the Cosmopolitan Shipping Co. for one year, they to guarantee all the service for the year, up to present standard.

The National Merchant Marine conference, organized under the direction of the United States chamber of commerce, which will make the broadest study of the government merchant marine situation that has yet been undertaken, is taking steps to go to the bottom of the whole situation. It may be stated that both Secretary of Commerce Hoover and the President are kept in close touch with the progress of the conference.

## Board Delegates Palmer To Negotiate Sales

Acting upon the suggestion of President Coolidge the shipping board, on June 23, delegated the authority to negotiate all sales of ships to Admiral Palmer, head of the Fleet corporation.

This arrangement will make it possible for prospective buyers of ships to deal with the government in a direct and efficient manner, and is a step forward.

200 of the laid-up vessels. And the \$6,000,000 Hog Island shipyard at Philadelphia also has been placed on the market for sale to the highest bidder by the fleet corporation. Disposal of the Hog Island yard will be by sealed bid only. A recommendation had been made by the Fleet corporation that the property should be advertised for sale, which the board approved. It is not expected, of course, that any substantial part of the original cost will be recovered.

Specifications governing the sale of 200 vessels for scrap provide two alternatives first that the vessels shall be completely dismantled and scrapped as steamships, within the continental limits of the United States, inclusive of engines, boilers, auxiliary machinery and other equipment, which shall be rendered non-usable for other than scrap; second, like the first except that, purchasers are at liberty to make such disposal or sale of engines, boilers, auxiliary machinery and other equipment as they desire.



# From the Old Log Book

Stray Items About the Great Lakes, Atlantic, Pacific and Gulf Coasts and Inland Rivers from MARINE REVIEW Files of 10, 20, 30 and 40 Years Ago

July, 1885

UNDER date of May 19, 1885 the bureau of navigation addressed a communication to the collector of customs at Oswego, N. Y., refusing permission to change the name of a certain steam vessel, summarizing its reasons as follows: "The name GENESEE does not seem to be in any manner objectionable and the bureau is constrained to decide that the facts demand its retention." Bureaus and bureaucrats are apt to be a bit stiff-necked in the exercise of authority but we believe that the present incumbents of office are decidedly more obliging judging from a recent visit to Washington.

*In view of the fact that today nearly 60 per cent of the American merchant marine burns oil the account given in the MARINE RECORD (then the name of the MARINE REVIEW) 40 years ago, of one of the first marine oil burning installations is of great interest.*

Two tanks were placed on the ferry steamer Solano which plied between Port Costa and Benicia. Pipes conducted the oil (waste obtained by refining petroleum) to the furnaces and a jet of steam distributed the greasy stuff which burned with a roaring noise and fierce heat. The account goes on to say that the experiment proved entirely satisfactory and saved one half in the cost of fuel, none other being necessary where this heretofore worthless commodity was used. It was predicted that other steamers and perhaps shore plants would be similarly equipped. Developments beyond the most optimistic prophecies of the time have been made.

July, 1895

WE ARE told that the S. S. St. LOUIS of the American Line attained an average speed of a little better than 18 knots, with a maximum of 19½ knots, on 16,000 indicated horsepower at 85 revolutions per minute, on her first voyage across the Atlantic. Better speed, it was said,

could be expected later on as the engines were not hard pressed. A full description of the machinery is then given.

*Though 30 years have passed since this performance was recorded and we now have trans-Atlantic liners that can average 25 knots, the speed then made would not be considered slow today. In other words for sea going vessels we came to the practical maximum of speed some time ago. Speed is not likely to be increased, but safety, comfort and luxury will be stressed more than ever in competition for passenger travel. Yet we cannot help but feel, should an American flag merchant ship or any other for that matter attempt to capture the trans-Atlantic blue ribbon for speed, that the Cunard line would not relinquish it without a great struggle. Tentative plans are probably all ready to meet any such move.*

Six new composite gunboats were to be built for the navy, three of these were to be propelled by full sail power and a single screw. The account said that a sailing speed equal to that under steam power was to be expected. And this was only 30 years ago!

July, 1905

JOHN H. DIALOGUE & SON, Camden, N. J. had just completed the freighter LEWIS LUCKENBACH for Lewis Luckenbach of New York. A complete description, illustrated with midship section, inboard profile and plan drawings, was published in the MARINE REVIEW of that day. The freighter had three Scotch boilers and one triple expansion reciprocating engine and her dimensions were; length overall 362 feet, beam 48 feet and depth 28 feet.

After the death of the senior Dialogue the firm was liquidated and the son, who recently died, spent the latter years of his life as the highly respected and well-liked marine superintendent of the Luckenbach Steamship Line.

*An editorial rejoices over the purchase by the Isthmian Canal commission of two American built ships for the important mail freight and passenger service between New York and the Canal Zone. It pointed to the premature exultation of foreign companies when they felt assured that the vessels would be bought abroad.*

*Like the poor, the struggling American merchant marine is always with us; today as it was 20 years ago. Let us hope that an impression has now been made upon the national consciousness and that something really constructive will be done in the next congress.*

The Fore River Shipbuilding Co. had been awarded a contract for a twin screw turbine passenger and freight steamer by the Southern Pacific railway. In the 20 years that have passed this company has steadily progressed in its steamship activities.

July, 1915

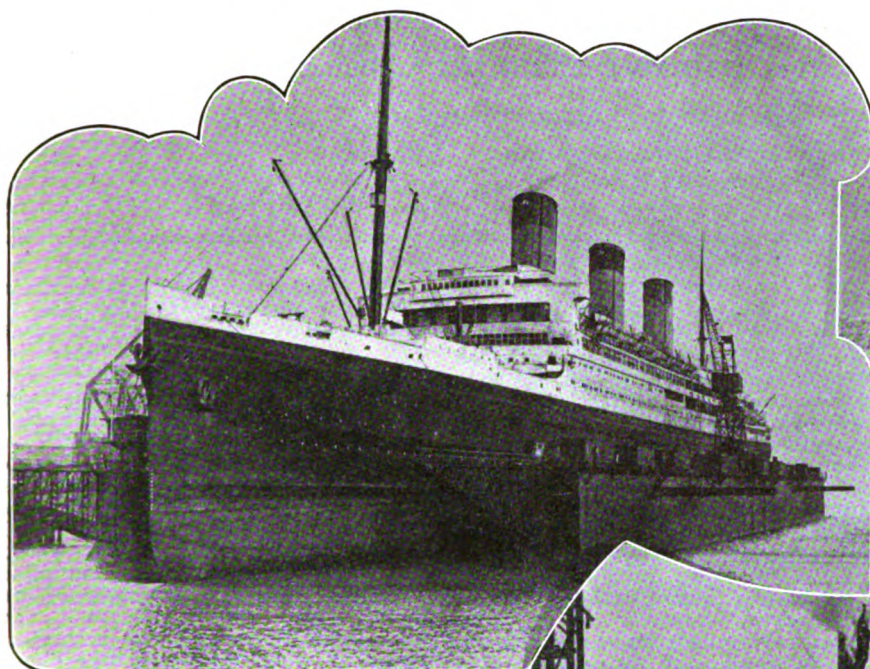
THAT American shipping had begun to feel the effects of the Great War is clear from a story of the crippling of the freighter NEBRASKAN on May 25. The chief engineer reported seeing to starboard a white streak in the water at right angles.

The attack the article goes on to say constituted the gravest infringement of the rights of American ships in the 11 months of warfare. The historic importance of this and other attacks on American ships is that the cumulative effect caused our participation in the war and the ultimate defeat of Germany.

*The story is told of the orders of the interstate commerce commission, divorcing railroads and steamship lines, in its administration of the then recently passed Panama Canal act. This act provided that it was unlawful for any railway to control or have any interest in any common carrier by water, operating through the canal or elsewhere, with which the controlling railway competed or was likely to compete.*

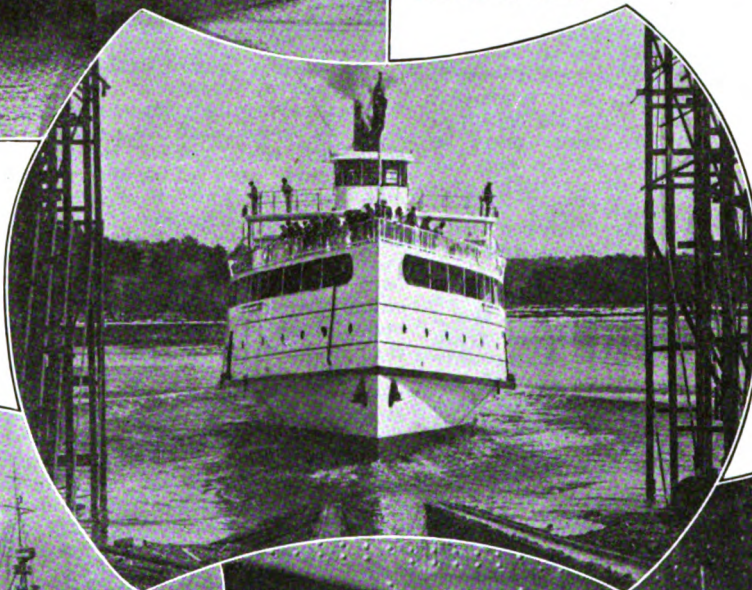


# Latest Marine News in Pictures

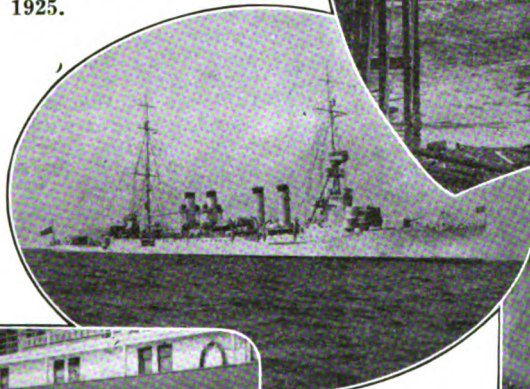


World's record weight lifting feat at Southampton. The 56,551 gross tons, S. S. Majestic lifted in the new 60,000-ton floating drydock in 25 minutes.

S. S. Nobska, passenger boat for the Nantucket run, launched at Bath Iron Works, Bath, Maine, March 24, 1925.



Steamer Alabama of the Goodrich Transit Co., five miles off shore near Grand Haven, Mich., ice bound, March 8, 1925.



One of the greyhounds of the navy, Scout Cruiser Cincinnati, with 98,000 horsepower and capable of a speed of 35 knots. This vessel is fitted with Westinghouse turbines.



S. S. Alabama of the Goodrich Transit Co. A close-up showing the crew, having come out of a side port of the ship, resting on the piled up ice outside.

Secretary of the Navy Curtis D. Wilbur, Mrs. Wilbur (sponsor) and their daughter, at the launching of the U. S. S. Airplane Carrier Saratoga at New York Shipbuilding Corp., Camden, N. J., April 7, 1925.





# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

ONE advancing money necessary to release a ship under libel is entitled to a lien for interest paid on a note executed by him in order to borrow the money to release the ship and for his traveling and incidental expenses in securing its release.—*EGERIA*, 294 *Federal Reporter* 791.

\* \* \*

"To make a ship seaworthy for the cargo sought to be transported, it must be shown that the relation of the ship to the cargo at the inception of the voyage was such as to make it seaworthy and fit to carry the cargo; not only must the ship be in a general seaworthy condition, properly equipped and manned, but the cargo must be stowed in such part of the ship as has been generally or specially provided for the particular class of cargo. A ship properly equipped with refrigerator facilities could not accept a cargo of fresh meat for shipment to the tropics and stow the meat in the engine room. To make a ship seaworthy for a cargo of fresh meat, it is incumbent upon the ship to show, not only equipment with refrigerator facilities, but that the meat was stowed in these facilities at the inception of the voyage; and with a cargo of candles, the burden is placed upon the vessel to show that the candles were stowed in a place of the ship reasonably fitted for such cargo, and may not shift the burden upon the shipper after showing general seaworthy condition, etc., to show that the candles were stowed near the engine room or steam pipes, or other hot objects. The exceptive clause "damage by heat" has operation only against outdoor temperature, and the usual and ordinary temperature of the vessel's hold."—*Kaufer Co. v. Luckenbach Steamship Co., Inc.*, 294 *Federal Reporter* 978.

\* \* \*

Seaworthiness is a relative term, and is ascertained ordinarily by the nature of the voyage or the use for which the vessel is to be employed. \* \* \* The owner of a vessel cannot delegate his duty toward a deckhand as regards seaworthiness of the vessel to others. \* \* \* Existence of a hole in the sheathing on the deck of a lighter, which had been there for a long time, rendered the ship unseaworthy, so as to permit the deckhand to recover for personal injuries, the sheathing or false deck having been placed over the permanent deck to protect the deck while loading; the owner cannot escape liability because another member of the crew failed to repair the hole, so obvious as to render the lighter plainly unfit for the contemplated work of loading.—*Henry*

*Gillen's Sons Lighterage, Inc., v. Fernald*, 294 *Federal Reporter* 520.

\* \* \*

Where the vessel sunk in collision through fault of another is of such peculiar construction that there is no market for her, the owner would be entitled to the cost of replacement less depreciation, if evidence shows that it was earning for him a fair return on such value, or, if otherwise, an amount which would make good to him the diminution of his earnings resulting from his loss, it was held in the case of *I. C. WHITE*, 295 *Federal Reporter* 593. "The market value yardstick cannot be applied to a ship of so peculiar construction that, while it profitably serves some need of its owner, nobody else has occasion for it," the court said. It was further decided that where, at the time of the loss of the vessel through collision, there had been a sharp decline in the value of ships, due to the falling off of demand after the war, and it appearing that there were enough ships for sale to enable the owner to buy another, there was a market, and if what was desired was to provide the owner with the means of giving him what he had lost, that was done by awarding him the price for which he could buy a ship, and it was error to dismiss the price level as so temporary as to be irrelevant.

\* \* \*

"Obligation of the ship to furnish maintenance and cure attaches to accidents which happen in the brief interval between the time a seaman is paid off and formally discharged and the subsequent time at which, in ordinary course, he actually gets physically away from her. He went on her as a seaman, and for the purpose in hand he did not cease to be one until he was safely off her. What allowance should be made for maintenance and cure, and in some cases for wages, must all depend upon facts of each particular case."—*MICHAEL TRACY*, 295 *Federal Reporter* 680.

\* \* \*

"As between the vessel owner and the charterer, the general rule is that, when the terms of the charter differ from those of the bill of lading, the charter party controls, and the bill of lading will, as between them, be treated as a receipt for the cargo delivered on board under the terms of the charter party." This rule, it was said in the case of *United States v. Fisher Flouring Mills Co.*, 295 *Federal Reporter* 691, is subject to exception where there is proof that the parties intended thereby to make a new agreement.

The question of rights to maritime liens was in issue in the case of *WASHINGTON*, 296 *Federal Reporter* 158, and the court there held: (a) Where a bankruptcy receiver continued the voyage, and the seamen performed their usual duties, their services were maritime, and their lien for wages was not suspended; (b) where the bankruptcy receiver claimed bankrupt's vessel as owner, she had no lien for advances made by her in operating the vessel in an attempt to make a profit for the estate, and which were not made on the credit of the vessel; (c) a canteenman on a vessel, whose equipment and belongings were lost when the vessel was libeled and sold, has a maritime lien for the loss, on an equal basis with a wage lien and prior to any liens for supplies furnished; (d) on libel of vessel for wages after appointment of a receiver in bankruptcy, wages, subsistence, and return passage of seamen who were abandoned were properly allowed.

\* \* \*

The meaning of the clause in a charter party, "the stevedore employed by the vessel to be approved by charterer," is that the appointment or nomination of the stevedore is to be made in the first instance by the vessel, and then submitted to the charterer for its approval. The owner does not have the sole right of appointment, and the charterers are clothed with a wide discretion in the exercise of their right of approval or disapproval. But such approval cannot be arbitrarily or unreasonably withheld, it was decided in the case of *Pool Shipping Co. v. Hanson Produce Co.*, 296 *Federal Reporter* 235, and what is unreasonable is a matter for determination under the circumstances of the particular case. Under the circumstances of the case at bar, it was held unreasonable for the charterer to insist upon a particular stevedore, when the work could have been done by an equally competent company for 20 per cent less.

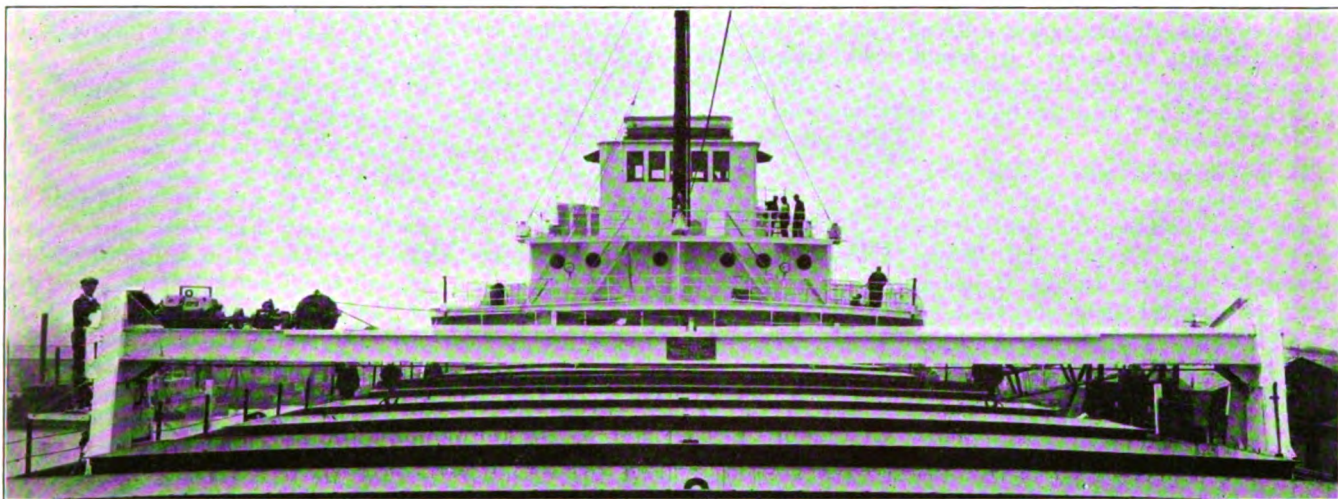
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Under sections 4283-4286 of the United States revised statutes, withholding the right to limit liability if shipowner had "privity or knowledge" of the fault which occasioned damages, the privity or knowledge must be actual, not merely constructive, it was said in the case of *84-H*, 296 *Federal Reporter* 427, and must involve a personal participation of the owner in some fault or act of negligence causing or contributing to the injury suffered.



# Equipment Used Afloat, Ashore

One Piece Hatch Cover Insures Safety and Watertightness—New Acetylene Generator—  
Diesel Exhaust Silenced Without Power Loss—Engine Speed Indicator of New Type



A close up of the gantry crane for lifting one-piece hatch covers on the WM. C. ATWATER—Crane travels under its own power from one end of the ship to the other.—Covers stowed between hatch coamings

**L**ARGE bulk freight steamers on the Great Lakes have heretofore practically standardized on sectional telescoping steel hatch covers. Such hatches have been opened and closed by means of winch power applied through cables attached to the center line sections. When closed they give a shingle effect to each half of the hatch and of course fit loosely in place. To make the hatches tight it is necessary to cover them with tarpaulins properly battened down and secured. Quickness in opening and closing hatches and proper stowage for covers have been the problems to overcome in the attempts to improve on the usual telescoping hatch cover.

Capt. J. S. Wood, fleet captain of the Wilson Transit Co.'s fleet of bulk freighters, has given the matter of hatch cover design long and painstaking study and when his company decided on a new vessel it was agreed to give the captain's ideas a practical tryout. That is why the WM. C. ATWATER, a bulk freighter completed in May, 1925, at the Great Lakes Engineering Works, River Rouge, Mich., for the Wilson Transit Co., Cleveland, is unique among all lake vessels in her hatch arrangements, covers, coamings and method of handling. The ATWATER is 605 feet over all in length, 60 feet in beam and 32 feet deep. Her hatches are spaced 24 feet between centers, as customary, but the hatch opening is only 11 feet wide, leaving 13 feet deck space between coamings. These covers are

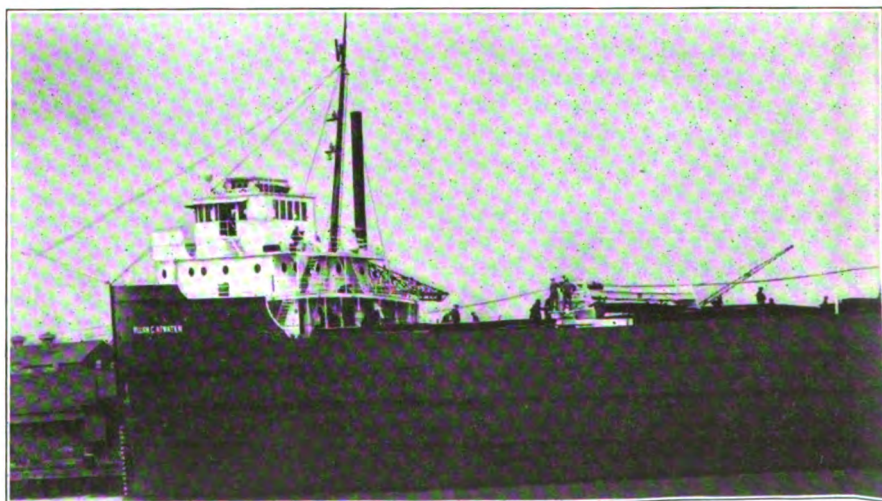
single units built up of steel plate, only one for each hatch, and weigh 6 tons apiece.

That many minds have recognized the deficiency of sectional covers, and the desirability of solid plates to replace them, is indicated by the various efforts heretofore made to devise a satisfactory hatch cover of this type. Marcella and others have tried wood covers in two or three sections, handled by handpower whirley cranes, one for every two hatches. A hatch, invented by Capt. W. W. Dawley, and used for a time on the steamer H. W. OLIVER, now the S. H. ROBBINS, had large plate covers, which were moved to the edge of hatch and set vertically when the hatch was opened.

While the covers themselves were quite satisfactory, the inefficient means of handling them, and the lack of proper stowage space, proved to be serious drawbacks.

The ATWATER hatches possess all the desirable features of these earlier types, and in addition, the method of handling is superior to the sliding cover type. The hatch cover itself is 38 feet x 11 feet and is made of 12½-pound plate stiffened with 13 seven-inch channels running fore and aft on the under side, and two 7-inch I-beams placed amidships across the top. The cover is cambered to conform to the camber of the deck.

Hatch coamings are the same height outboard at sides as at the center



A SIDE VIEW OF THE FREIGHTER WM. C. ATWATER SHOWING CRANE FOR LIFTING OFF NEW TYPE OF ONE-PIECE HATCH COVERS



line and are therefore higher than the ordinary type, being 24 inches all around. The coamings are stiffened on the outside by 4-inch angles, bracketed to the deck and to the top flange of the 4-inch bounding angle on which the cover rests. Stiffening of this sort is not possible with the usual sliding covers. From the standpoint of safety, it would seem highly improbable that anybody on deck would fall into the hold over a 2-foot coaming.

Set in the under side of the cover is a continuous piece of  $\frac{3}{4}$ -inch square flax packing, on which the cover rests on the coaming flange. Around the coaming, spaced 18 inches apart, are swivel bolts fastened to the coaming. These swivel bolts when up in place fit into appropriate slots in the cover and the coaming flange, and have large wing nuts which when screwed down clamp the cover securely in position. Even with these bolts not fastened, the cover could not slide out of the hatch opening, account of its weight and the stiffeners underneath.

The crane spanning the hatches is of the traveling gantry type, mounted on rails running fore and aft the entire length of the deck. It has about 3 feet clearance over the hatch covers, and its extreme height, at end frames, is 8 feet. The end pieces are "A" frames, connected by two channel girders. The lifting tackle attaches to the cover at two points, and lifts it clear of the coaming. The crane is then run in a fore and aft direction and conveys the cover to the space on deck between hatches, into which it fits.

Lifting is done by an electric motor, fitted with an automatic brake which would prevent the cover dropping, should the power supply fail. This electric motor also provides power for traveling. The operator stands on a hinged platform at one end, with all controls within easy reach. An automatic safety device prevents the covers from being raised beyond a desired height, nor can lifting or lowering be done while traveling, and vice versa. It has been demonstrated in actual service that removing or replacing the hatch covers takes about one minute per hatch, using one operator and two men to hook on.

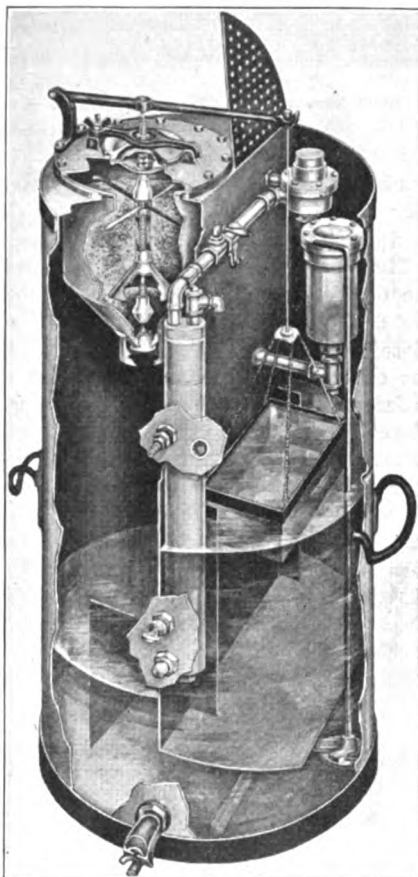
When not in use the crane can be securely fastened to deck amidships or aft. Hand gear is provided for emergency use.

Because of its rigidity, weight, wide coaming flange, and flax gasket, no tarpaulins are required. A very thorough test was made for water-

tightness and not a leak developed. This single-unit hatch and arrangement for stowage is the invention of Capt. J. S. Wood, of the Wilson Transit Co., and its period of use on the ATWATER has demonstrated its entire practicability. The building of the hatch covers and the structural work in connection with fitting them was done by the Great Lakes Engineering Works while the special gantry crane was worked out by the Northern Engineering Works, Detroit.

### New Acetylene Generator Portable and Automatic

A small generator for producing acetylene at low pressure for welding and cutting has recently been developed by the Oxweld Acetylene Co., 30 East Forty-second street, New



OXWELD 35 POUND CARBIDE CAPACITY  
PORTABLE LOW PRESSURE ACETYLENE GENERATOR

York. This outfit supplements a line of larger generators, a great many of which are used to supply pipe lines in shops where much cutting and welding is done.

The new generator, which takes 35 pounds of carbide at one charge, and is only 56 inches high and 24 inches in outside diameter can be transported readily from place to place, thus

providing a portable supply of generated acetylene gas. Empty, the generator weighs only 210 pounds.

An entirely new principle of feed control is used which might be called a heavier-than-water float. Referring to the accompanying illustration a vertical partition, extending nearly to the bottom into a water seal, divides the generator shell. One side is gas tight and contains the carbide hopper at the top. The upper part of the other side contains gas regulating and protective devices, and an automatic carbide feed control. Generation of the first acetylene causes water to rise on this side of the partition high enough to all but submerge a pan full of water, hung to a control lever. This pan normally acts as a weight acting counter to a spring, but as the water rises about it, its apparent weight is diminished and the carbide hopper valve is closed by the action of the spring. As acetylene is drawn off, water rises in the gas compartment and correspondingly lowers under the float, relieves some of the buoyancy under the water pan, which, gathering weight with the receding water, depresses the spring and allows a small amount of carbide to drop into the generator, and restore a condition of equilibrium.

Because of its low center of gravity, the generator rights itself when tilted at an angle of 30 degrees. It works perfectly at an inclination of upward of 10 degrees. No adverse effects result if a generator while in operation is knocked over. Nearly all fittings are enclosed in the cylindrical shell and there is little, if anything, projecting which may be injured by a fall on a concrete pavement.

This generator has been submitted to the Underwriters' Laboratories, Inc., and has been listed by them as an acceptable device for installation on insured premises.

### Silencer Extracts Noise Without Loss of Power

It is impossible of course with diesel or oil engines to ignore the question of noise. A wide opened unmuffled exhaust cannot be endured any better on board ship than in some stationary plants. In the case of a shore plant regard for one's neighbors if not exercised is likely to be enforced. Most diesel engined vessels are now equipped with silencers for their exhaust.

The silencer invented by Maxim for firearms has been adapted with success to the removal of all kinds of offensive sound waves in industrial life





TUG BOAT RUSSEL NO. 2—NEWTON CREEK TOWING CO.—FITTED WITH 135-HORSEPOWER LOMBARD DIESEL ENGINE—EQUIPPED WITH 5 INCHES SIZE MAXIM SILENCER INSTALLED IN STACK

by the Maxim Silencer Co., Hartford, Conn. The theory of operation, the construction and the use of silencers under ordinary conditions of gas flow are interestingly described in a new catalog brought out by this company.

Two questions would naturally arise in regard to any silencer, the first, what the effect will be on back pressure and the second how much of the noise is extracted. Considering the two cycle engine, in which obviously the effect of back pressure would be more serious than in the case of a four cycle engine, increasing the back pressure of the outlet of the exhaust gases at the beginning of their movement is permissible if a corresponding decrease in resistance is obtained at the end.

The manufacturer claims that this is exactly what happens as the passages of the silencer are long and free. An exhaust pulsation entering the silencing unit is slightly impeded at the start but when the long column of gas in the silencer passages is started in motion it tends to persist in motion, and actually serves as a partial vacuum towards the end of the exhaust period. If the exhaust port of the engine closes just at the moment of lowest pressure, the best engine performance is obtained.

In regard to the proportion of noise extracted we are told that this is a matter of compromise. Ninety per cent reduction is readily obtainable; the next 5 per cent requires a big increase in the silencing parts; the next 3 per cent a still greater increase in proportion. Complete 100 per cent extraction is not feasible. The silencers are therefore proportioned to meet practical needs and kept within reasonable dimensions and price.

The gas pulse first passes into a



TANKER TEXACO 125—TEXAS OIL CO—LENGTH 96 FEET 5 INCHES—BEAM 23 FEET 9 INCHES—DRAFT 10 FEET 3 INCHES—FITTED WITH 200 BRAKE HORSEPOWER FAIRBANKS MORSE & CO. TYPE C-O ENGINE—EQUIPPED WITH 8 INCHES SIZE MAXIM SILENCER ON EXHAUST

comparatively small expansion chamber which smooths delivery in the same way as an air chamber on a reciprocating pump, and further provides a place where solid and liquid matter in the gases can deposit for easy removal.

The silencing unit proper, into which the gases then pass, trap out the noise wave in one of two ways:

*First*, by utilizing repeated reflection to dissipate the energy of the wave.

*Second*, by stretching out or subdividing the wave over a longer time interval so that it reaches the ear in small dulled fragments.

Distinctly different silencing unit construction is required for the two principles, and that chosen depends upon the noise conditions. Units built on one or the other of these two lines have been found to meet all noise problems.

Silencing by repeated reflection is accomplished by building the unit of cast sections which when assembled form parallel spiral passageways. This principle is used most frequently for two cycle exhausts.

Silencing by subdivisions is obtained by building up the unit of cylindrical plate of different diameters set between flat heads to form a series of

concentric annular channels. These channels communicate with each other in stages by longitudinal ports in the cylinder sides. Silencers built on this principle are particularly effective in quieting sharp hissing noises and are used on air compressor blower intakes and on four cycle diesel exhausts.

The diesel engined tug and small tanker illustrated herewith are both equipped with silencers. That the silencer serves a very practical pur-

pose, and if properly designed and installed, that it does not rob the engine of any power, is quite clearly demonstrated by the increasing number of craft making use of it.

## Engine Speed Indicator for Marine Use

Every commander whether he be on board of a battle cruiser, a yacht or an old tramp is entitled at all times to receive accurate information automatically conveyed to the bridge, on the position of the helm and what revolutions the engines are turning up. Many accidents can be traced to lack of or inaccurate information received on these important points.

To complete its line of aids to navigation and particularly as a companion instrument to its helm angle indicator, the Sperry Gyroscope Co., Brooklyn, N. Y., has brought out a new type of engine speed indicator, the component parts of which and method of installation are shown in the accompanying illustrations. This engine indicator will show at any desired position on the ship, the number of revolutions per minute of the main engines or the propeller shaft and whether or not these revolutions are ahead or astern. But in addition



the indicator also records the total number of revolutions thus combining information usually given by separate instruments.

It has definite advantages for the bridge and for the engine room. On the bridge it serves as a valuable aid to navigation in that it keeps before the eyes of the navigator the total ahead revolutions made, also a current record of whether or not the prescribed speed of the propeller is being maintained. This information is of vital value in calculations based on dead reckoning. As an aid to safe handling of a vessel in close quarters the officer responsible receives instantaneous confirmation of all orders transmitted to the engine room. He knows at once by looking at the dial of the speed indicator that orders to change speed or to reverse have been received and acted upon.

In the engine room the value of the speed indicator, while of a different



THE SPEED INDICATOR—LOCATED IN CONVENIENT PLACE IN ENGINE ROOM AND IN THE PILOT HOUSE OR ON THE BRIDGE

are two or more engines this instrument makes it possible to run the engines at relative speeds, equalizing the expended propelling power and reducing vibration.

#### Method Of Operation And Description

For power to operate the revolution indicator, the same system that has been utilized for many years in the gyro-compass, gyro-pilot and gun fire control apparatus where a high degree of accuracy is required, is used. Exacting indications it is said are thus assured. Only  $\frac{1}{2}$  ampere from the ship's lighting current of 90 to 110 volts is needed to operate a system consisting of one transmitter and two indicators.

Two separate dials in a single casing indicate ahead and astern revolutions per minute. The ahead indicator goes to zero when the engines are reversed and the number of revolutions appear in the aperture marked astern. Another counter registers the total ahead revolutions made reading up to ten million. The ahead revolutions are not subtracted when going astern. The unit comprising the transmitter consists of a commutator type contact making arrangement with a special

type roller brush which insures positive contact and long life in the wearing parts. These parts are easily renewed when necessary. It is of slow speed type and runs at the shaft speed, so that it can be directly connected to the end of the shaft or by spur gearing if mounted in the shaft alley. The cover of the transmitter can be readily removed giving full access to the working parts inside. Mounted in high grade self aligning ball bearings the rotating member of the transmitter needs to be and is lubricated only at rare periods, through oil cups on the outside of the instrument.

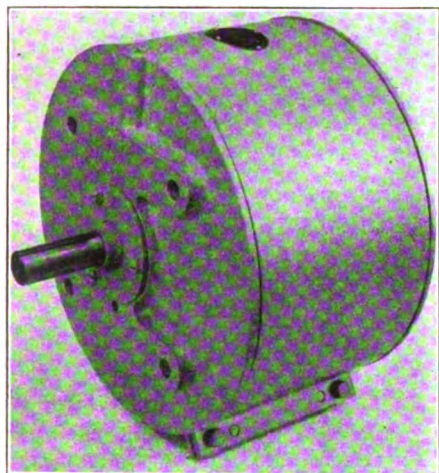
Care should be exercised in installing the transmitter to secure it firmly on a rigid support in the proper position with respect to the shaft to which it is to be coupled or geared. Where it is to be directly connected the axes of the transmitter and driving shaft must coincide. If spur gearing is used the axes of the transmitter and driving shaft must be parallel and the gear ratio should be one to one. Indicators should be mounted in the engine room within sight of the officer on watch and in the pilot house or on the bridge where it can be seen by the deck officer on watch.

According to the makers the electrical installation of this revolution indicator is simple, requiring only four wires with a tap in on the circuit for the ship's supply current. The entire apparatus requires little attention. Oiling is done externally to both the indicator and transmitter.

### Legally Ship's Radio Is Not a Part of Ship

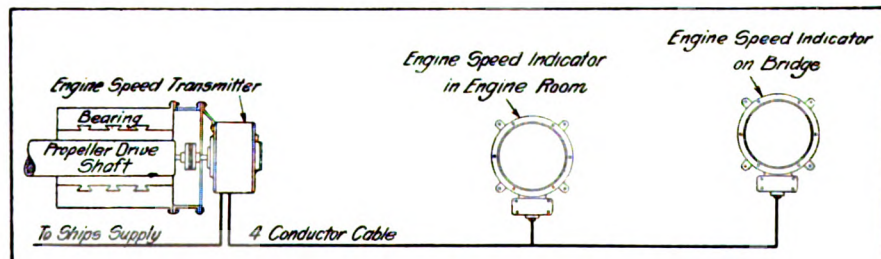
Rented radio apparatus on a vessel is not part of the ship and, therefore, may not be subject to a lien on the ship according to a decision recently handed down by Judge Bledsoe in the district court for the southern district of California. Radio interests engaged in the marine communication business, have long sought a definite ruling concerning the right to subject radio apparatus aboard ships to claims against ships so equipped.

The action in which the decision was made was filed against the British yacht *Frontiersman*, on which the Marconi company had installed and rented apparatus for radio communication purposes. In this suit the Marconi company were intervenors. The court held that the apparatus did not become part of the ship, and, therefore, not subject to libel against the vessel. This case is said to be the first of its kind in American jurisprudence.



THE TRANSMITTER—ONE OF THE COMPONENT PARTS OF A NEW ENGINE SPEED INDICATOR—IT IS DIRECTLY CONNECTED OR GEARED TO THE DRIVING SHAFT

nature, is of hardly less importance. The engineer has a constant check on the revolutions of the propeller shaft and can thus speed up or slow down the engine to correspond to the prescribed number of revolutions asked for by the navigator. Where there

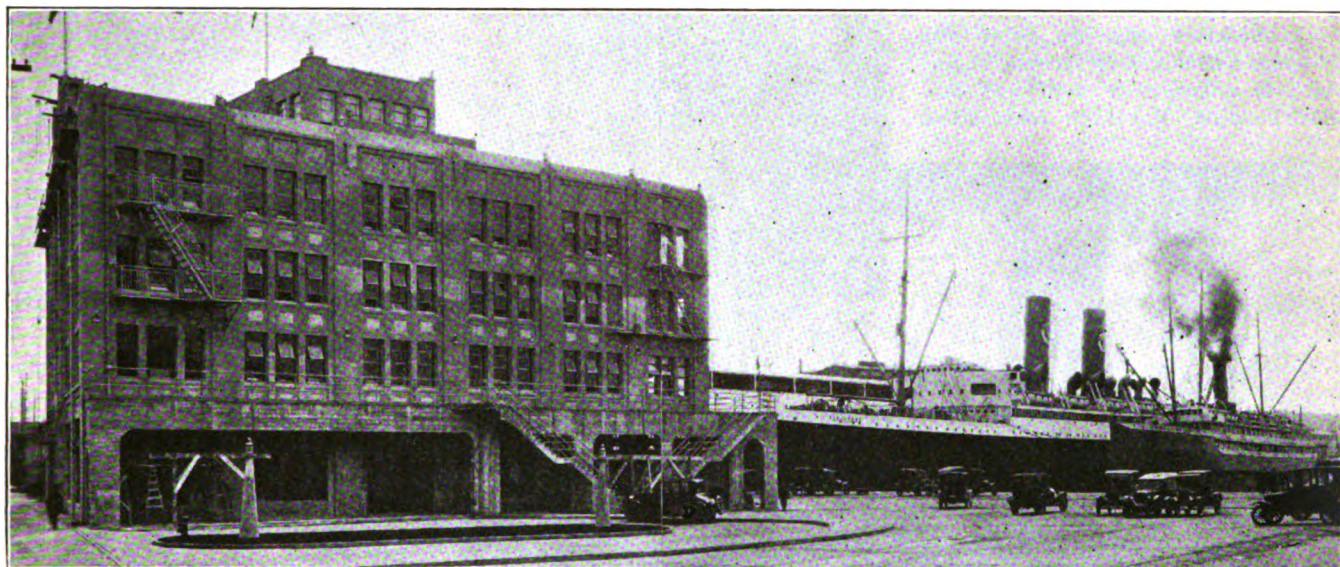


LAYOUT OF ENGINE SPEED SYSTEM—THE TRANSMITTER IS DIRECTLY CONNECTED TO THE PROPELLER SHAFT THROUGH A FLEXIBLE COUPLING—OR LOCATED PARALLEL AND IN CONTACT WITH DRIVE SHAFT THROUGH SPUR GEARING



# Dock Management Progress Section

How Successful Dock Operators Have Met  
Problems of Giving Best Service to Ships



Office building and first unit of modern ocean piers and terminals—erected on the site of Skinner & Eddy shipyard, Seattle, Wash. Express liner H. F. ALEXANDER formerly the GREAT NORTHERN, alongside the new pier

## New Pacific Terminals Are Efficient

BY ROBERT C. HILL

**P**REDICTIONS have been freely made that the center of shipping and commerce will in time shift to the West Coast. The trade with the Orient and with our own possessions in the Pacific is but in its infancy, and the states lying west of the Rockies constitute in themselves a large empire with great resources yet to be developed. To serve present needs and to be prepared for future expansion far sighted progressive and courageous practical port development is under way in Seattle, the gateway of the Northwest.

Constituting what is conceded to be not only the largest but most highly developed port improvement on the Pacific coast in recent years, the first unit of the new Pacific steamship terminals was formally opened early in April.

This unit which is the first of three consists of one pier 168 feet wide by 1100 feet long; a five-story reinforced steel and concrete passenger terminal and general office building; a two-story reinforced steel and concrete stevedore's chapel and other accessory buildings. Every modern con-

venience and every mechanical device and improvement for the handling of freight and passenger traffic has been embodied in the new terminals.

All cargo is received and delivered from the south side of the great pier. Thirty loading and delivering entrances with rolling steel doors have been provided on this side of the building, which is approached by a depressed paved roadway 48 feet wide, obviating the necessity of trucks entering the dockhouse. Freight for trans-shipment to and from rail lines is handled from two depressed spur railroad tracks which run through the center of the pier for its entire length, and are capable of accommodating 50 standing railroad cars at a time.

Nine cargo slips of the most modern design permit the handling of cargo in and out of ships' holds with unusual facility. At the face of the pier a Barlow electrically operated elevator is provided for receiving and delivering cargo from Puget Sound steamboats.

From an accompanying illustration it will be noted that loaded hand

trucks are moved up portable runways from the ship's side by means of a continuous cable driven by a portable electric motor outfit. By the application of power in this manner the accessibility and all around advantages of the hand truck are retained while at the same time the load is not limited by the power of one man. The amount of work done is increased and the laborer is saved from an excessive strain.

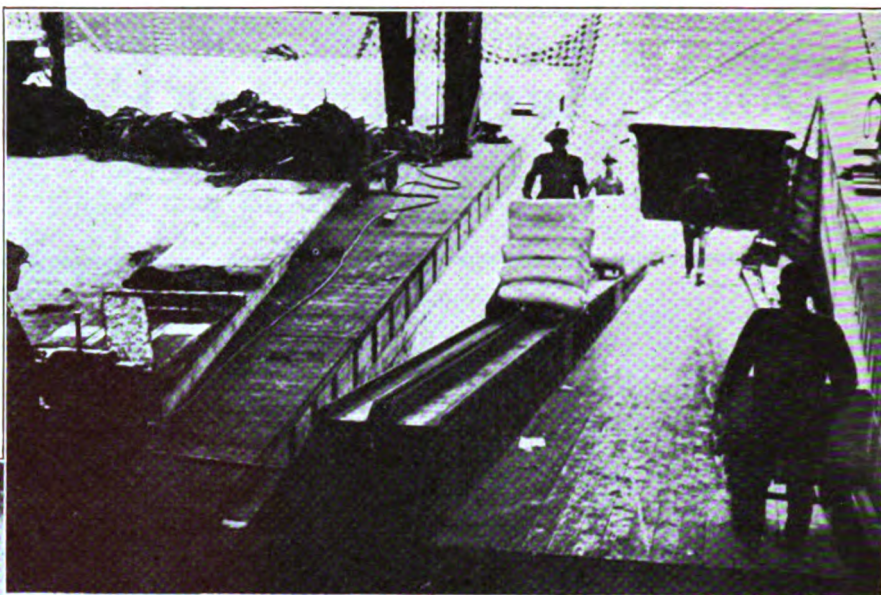
Nowhere on the Pacific coast are such modern facilities provided for passengers as in the new terminals. From a spacious waiting room on the ground floor of the terminal building passengers go to and from the ships by a system of overhead runways similar to those provided in the great terminals in New York City where the huge ships from Europe and the United Kingdom berth. At no time is it necessary for passengers to traverse the floor of the pier while boarding ships at the Pacific Steamship terminals.

On the north side of the passenger terminal building an attractive circular driveway with parking space

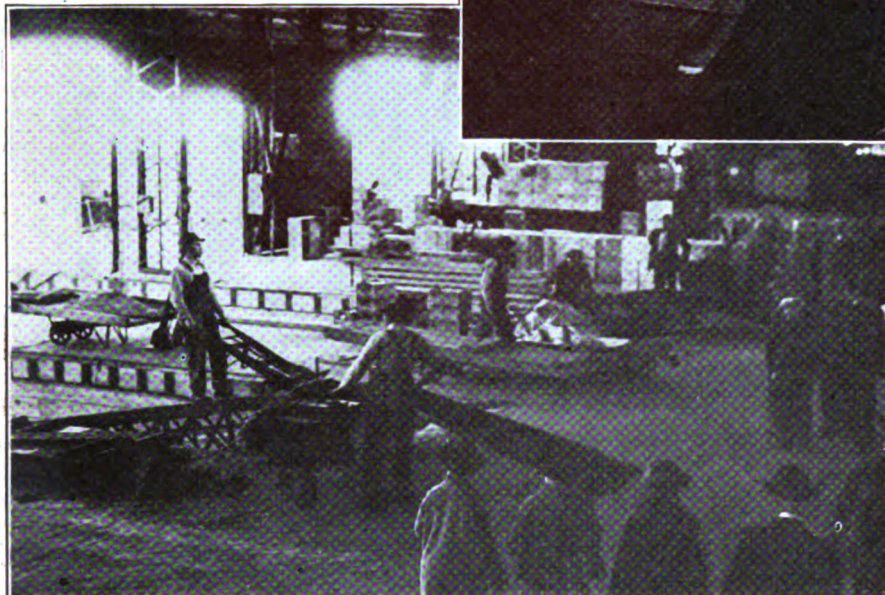


for taxicabs and hotel busses has been provided which eliminates the confusion which usually attends the arrival or departure of large passenger ships. By this arrangement passengers sailing on Admiral Line vessels step directly from their cab or hotel bus into the waiting room of the terminal building and go thence by overhead runway to the ship's deck.

In connection with the great pier and office building a stevedores' chapel which is a two-story reinforced concrete building, has been constructed.



LOADED HAND TRUCK BEING MOVED UP THE INCLINE FROM SIDE PORT IN SHIP-BY CABLE OPERATED BY PORTABLE ELECTRIC MOTOR



SOME LABOR SAVING DEVICES ON THE NEW DOCKS OF THE PACIFIC STEAMSHIP TERMINALS, SEATTLE, WASH.—PORTABLE ELECTRIC MOTORS AT HEAD OF INCLINED GANGWAYS FOR RUNNING CABLES IN ASSISTING HAND TRUCKS

This building contains every facility for the comfort of the company's stevedores, including rest rooms with shower baths and a large cafeteria. A similar two-story concrete building is provided on Massachusetts

street which houses the carpenter shops, riggers' loft and a garage for a fleet of electric tractors by which all cargo is moved over the pier.

All vessels operated by the Pacific Steamship Co. in the California and Alaska trades now berth at the new pier, which is known as pier 1, Pacific Steamship terminals. This pier has a slip on the north side 1100 feet long and 125 feet wide with a depth of 35 feet at low tide. There is probably not a slip of this width and depth of water at any other terminal on the Pacific coast. While the great pier is 1100 feet long and 168 feet wide, the warehouse is 990 feet long and 154 feet wide and is steel-trussed with galvanized sheet iron roofing and siding.

## Gives N. Y. Port Inter-Dock Distances

**T**OWING charges in and about New York harbor are all based on the nautical mile or zone. It has been the practice of all companies and individuals, who are interested in this class of work, to gage the distance from maps of various types and scales. The result of this variable scaling has been that distances as measured by one concern were different from the distances between the same points as measured by another concern. Bills were thus received by railroad companies and others, with different distances shown between the same points. The idea of establishing and fixing these distances between all points in New York harbor was suggested to the Railroad

Marine Managers association and to the New York Towboat exchange, between the two representing the owners of nearly all of the towing ships in the harbor. These associations saw immediately the advantages of such a measure and backed it enthusiastically. To fulfill such an order and condense the necessary information in a workable device, of course required a great amount of study. After trying books, double wheels, and other devices the final and winning solution was a card system mounted on a cast iron frame. G. S. Clark of the marine department of the New York Central was largely the originator and the work was carried out under his direction. This device is tabbed show-

ing all points to and from which towing and lighterage is carried on. There are about 122,500 combinations in its make up. Every tab shows four points with sufficient blanks to take care of any points that may be added as the unused parts of the harbor are built up. The cards have one column for the distance, which is opposite the pier designated in another column. The harbor is divided into districts, which are in order around its perimeter inside of the lighterage limits. To operate the device all that is necessary to find the distance between any two points is to pull down the tab of either point. The distance is then read directly. It is possible to read off twenty dis-



tances a minute and as compared with the old methods the time saving is about 500 per cent. Besides an agreed upon uniform accuracy is obtained.

This device can be worked for any harbor in the world where towing is done on the nautical mile or any zone basis. Where a great deal of towing and lighterage is done the saving in time of clerk hire in making out and checking towing bills quickly pays for the investment. It eliminates errors and arguments and can be made a basis for making agreements and contracts.

A most valuable piece of work of this kind should really be undertaken by some one of the public bodies that have to do with the planning, control and operation of a port. Thousands of dollars are spent to obtain statistics of far less interest and importance. For the harbor of New York this work probably did not exceed \$4000 in cost. The cost for other ports would be correspondingly less, very much less in fact. Perhaps this work for each port could most readily be carried out under the direction of the board of engineers for rivers and harbors of the war department.

### Increase in Passengers Handled at Cherbourg

More trans-Atlantic passengers were handled at Cherbourg during the first quarter of 1924 by the Cunard Steamship Co. than by any of the other 10 companies using that port, and more than the combined total of the two nearest competitors, namely, the White Star and United States lines. The totals for the three companies were respectively 8586, 4098 and 3846.

The United States lines led, however, in the movement of mails during the same period, having embarked 10,422 sacks of French mail and disembarked 23,988 sacks of American mail, a total of 34,410, as compared to 33,669 sacks for the Cunard line and 27,846 for the White Star line.

From the following table it would seem that competition from the United States lines has apparently affected the White Star more than the Cunard line.

| Name of company    | 1st quarter 1923 | 1st quarter 1924 | 1st quarter 1925 |
|--------------------|------------------|------------------|------------------|
| Cunard .....       | 4,640            | 7,020            | 8,586            |
| White Star .....   | 5,357            | 4,391            | 4,098            |
| United States .... | 1,584            | 2,135            | 3,846            |

The Hooven, Owens, Rentschler Co., Hamilton, O., announce the removal of their New York offices from 39 Cortlandt street to the Bowling Green building, No. 11 Broadway.

### Why Manila Makes Rope

Strength and durability render the fiber known as manila hemp the premier material for cordage. For marine use its unique advantage is that it resists deterioration from salt water. The culture of this valuable product remains practically a monopoly in the Philippine Islands although numerous efforts have been made to produce it in other tropical regions. Only in the Dutch East Indies has any exportable quantity been produced.

Long usage is the only justification for the name hemp as applied to this fiber. In the Philippines the name "abaca" is used almost exclusively. The abaca tree resembles the banana plant to which it is closely related. Fiber is obtained from the leaf stems.

Labor for separating and cleaning fiber is the great problem in increasing the supply of abaca. "Stripping," to separate the fibers from the pulpy matter, requires care and patience. One man's labor in careful stripping will yield on an average about 13 pounds of high grade fiber per day. Even skilled strippers find the work exhausting. Machines devised for stripping hemp have never proved entirely satisfactory under all conditions. Recently there has been a report of the successful operation of a stripping machine in certain localities but a long time is needed to prove its worth.

Abaca is as a rule second only to rice in acreage and total value of the crop and was for many years the leading export product of the islands. In 1922 exports of the fiber were valued at almost \$20,000,000 and were exceeded in value by only one commodity, sugar. The bulk of the exports come to the United States. The United Kingdom is also a large buyer and London is second to New York as a market for manila hemp. A conspicuous feature of the trade in the past few years has been the marked increase in purchases by Japan.

Rope and cordage are the chief uses of abaca in the United States. In this country abaca scarcely competes with sisal as a material for binder twine, but in the United Kingdom low-grade manila fiber is widely used for that purpose. Wornout manila rope continues in use either as oakum for caulking the seams of vessels or as one of the materials for the manufacture of paper.

The value of abaca in the agricultural system of the Philippines is inestimable because its culture is well adapted to the methods of small farming. Most of the export business of

the islands is in the hands of Americans and foreigners. International trade in manila hemp thus far remains a free market exempt from the efforts of commission and monopoly control.

Owing to the alleged inefficient handling of steamers and cargoes at Buenos Aires, a committee representing the principal organizations of importers, exporters and shipping companies has petitioned the minister of finance to re-establish the Harbor Control board created by law No. 8389. This law provided for concentrating in a single division of technical management of the port of Buenos Aires, including the operation of the wharves, warehouses, and railways.

### Handling Cargo-Shanghai

Commerce Reports quotes the following interesting outline by the British department of overseas trade in regard to the procedure for handling cargo at Shanghai.

"All landing charges are paid by the steamship company.

"The consignee is given 10 days free storage by the steamship company, from the arrival date of steamer.

"If not delivered by consignee within 10 days, storage is charged at prescribed rates, according to the size of the package, etc. This charge includes coolie hire for storing the cargo.

"Transportation charges for bringing the cargo from the Pootung water front are borne by the shipping company, but are debited to the consignee.

"Coolie hire from the Shanghai water front to the consignee's own door is borne by the consignee.

"Marine insurance (including fire) is covered by consignor and expires 10 days after the arrival date of steamer. On the expiration of the marine policy, fire insurance is covered by the consignee.

"If the cargo is landed at Pootung and not delivered within 10 days, consignee must cover lighterage insurance at the time of taking delivery."

It is stated on good authority that the inquiries made on account of the Eastern Steamship Corp. Ltd., of Boston, for the construction of two 5500 tons 180 passenger vessels for the Boston Yarmouth run, show that the British quotations are only about 18 per cent below the prices received through American shipyards. It was thought that the British prices would be at least 40 per cent lower.



# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

| NAME                      | DATE     | NATURE             | PLACE                 | DAMAGE RESULTING          | NAME               | DATE     | NATURE             | PLACE              | DAMAGE RESULTING        |
|---------------------------|----------|--------------------|-----------------------|---------------------------|--------------------|----------|--------------------|--------------------|-------------------------|
| Azov                      | May 1    | Ashore             | Cape Hogan            | Bottom                    | J. B. Eads         | June 5   | Aground            | Lake St. Clair     | Floated                 |
| Adige                     | May 16   | Explosion          | Hampton Roads         | Not stated                | Jerseymoor         | June 5   | Fire               | Quarantine         | Not stated              |
| A. D. MacBeth             | May 15   | Aground            | Stag Island           | Floated                   | Kelsomoor          | May 11   | Aground            | Sandy Hook         | Not stated              |
| Anna Jensen               | May 26   | Collision          | East River            | Plates-stanchions         | Kestrel            | May 23   | Aground            | River Avon         | Floated                 |
| Avocet                    | Mar. 27  | Collision          | Queen's Dock          | Rudder-propeller*         | Kinghorn           | May 4    | Struck break-water | Genoa              | Slight                  |
| America                   | May 28   | Ashore             | Scotts point          | Floated                   | Ludlow             | May 26   | Fire               | Gulfport           | Not stated              |
| Angeline                  | May 16   | Collision          | Soo River             | Plates                    | Lygnern            | May 14   | Collision          | Beachy Head        | Not stated              |
| Afoundria                 | May 29   | Aground            | Brake                 | Floated                   | Lundy Light        | May 29   | Grounded           | Martin Garcia      | Not stated              |
| Amstelland                | May 14   | Aground            | Rotterdam             | Floated                   | Mohican            | May 14   | Fire               | Florida Coast      | Considerable            |
| Aalsum                    | June 9   | Disabled           | Malta                 | Machinery                 | Matheran           | May 2    | Fire               | Calcutta           | Cargo                   |
| Angelo Brunetti           | May 8    | Collision          | Rotterdam             | Not stated                | Mevania            | May 19   | Disabled           | New York           | Engine                  |
| American Trader           | May 11   | Struck dock wall   | Tilbury               | Stem                      | Michigan           | May 22   | Aground            | Southeast bend     | Floated                 |
| Aero                      | June 11  | Ashore             | Terceira              | Total wreck               | Margaret Spencer   | May 19   | Aground            | New Inlet          | Not stated              |
| Afoundria                 | May 30   | Aground            | Brake                 | Floated                   | Madeline           | May 5    | Collision          | San Francisco      | Sank                    |
| Astrea                    | May 29   | Fire               | Lima                  | Total loss                | Maddalena Odero    | May 29   | Fire               | Genoa              | Cargo                   |
| Bridgetown                | May 14   | Fire               | New York              | Slight                    | Marcella           | May 29   | Ashore             | Cape San Roman     | Not stated              |
| Boston Maru               | May 16   | Fire               | Mystic Wharf          | Cargo                     | McKie              | June 5   | Ashore             | Sandal Isle        | Floated                 |
| Benj. Franklin            | May 19   | Ashore             | New York              | Not stated                | Maria Josepha      | May 11   | Collision          | Hook of Holland    | Not stated              |
| Balderton                 | May 5    | Ashore             | Black Sea             | Floated                   | Margaretha         | May 6    | Collision          | Brunsbüttelkoog    | Leaking                 |
| Baldbutte                 | May 22   | Ashore             | New Providence Island | Bottom-floated            | Margareta          | May 6    | Collision          | Brunsbüttelkoog    | Damaged                 |
| Bullfinch                 | May 13   | Collision          | Yarmouth              | Skids, davits and bulwark | Nilos              | April 29 | Sank               | Salonica           | Not stated              |
| Baalangitch               | May 26   | Collision          | Stambul               | Stem                      | Navarra            | May 3    | Collision          | Lastres            | Not stated              |
| Brosen                    | May 14   | Aground            | Rotterdam             | Not stated                | Noronic            | May 23   | Fire               | Sarnia             | Not stated              |
| Brisish Hussar            | May 14   | Collision          | Rotterdam             | Not stated                | Nesazio            | May 5    | Collision          | Parenzo            | Not stated              |
| Byna                      | May 7    | Collision          | New York              | Plate                     | Orchis             | May 23   | Collision          | Ipawich            | Port bow-stem head      |
| Ceylon                    | May 5    | Aground            | Tamang Straits        | Bows                      | Oliveri Sebastiano | May 18   | Sank               | Benghazi           | Total loss              |
| Clemenceau                | May 4    | Struck sub. object | River Saloum          | Propeller                 | Oakwood            | June 12  | Ashore             | Millers Point      | Not stated              |
| Curlew                    | May 5    | Collision          | Brightlingsea Crk.    | Bulwarks                  | Porto Rico         | May 15   | Aground            | San Juan           | Floated                 |
| Corcrest                  | May 15   | Collision          | River Thames          | Amidships                 | Peppita            | May 3    | Collision          | Lastres            | Sank                    |
| Chavington                | May 15   | Collision          | River Thames          | Not stated                | Portreath          | May 26   | Collision          | Montevideo         | Damaged                 |
| Como                      | May 15   | Collision          | Liverpool             | Not stated                | Pola               | May 5    | Collision          | Parenzo            | Not stated              |
| City of Durban            | May 29   | Struck break-water | Colombo               | stem-fore-peak            | Peder Bogen        | May 18   | Collision          | Rotterdam          | Above water line        |
| Commercial Path-finder    | June 9   | Ashore             | Mobile Bay            | Floated                   | Peter Reiss        | May 13   | Struck pier        | Saulte Ste Marie   | Plates                  |
| Christina                 | May 30   | Collision          | Rotterdam             | Damaged                   | Riol               | May 3    | Sank               | Valdivia           | Not stated              |
| Ceylon                    | May 4    | Ashore             | Rio Strait            | Not stated                | Rata               | May 13   | Fire               | Port Madryn        | Not stated              |
| Chas. J. Baker            | May 15   | Sank               | Baltimore             | Not stated                | Rita               | May 14   | Collision          | Holtenau           | Leaking                 |
| Clan Murdoch              | May 1    | Fire               | Birkenhead            | No. 4 hold                | Reliant            | May 29   | Sank               | Tory Island        | Not stated              |
| Clara Camus               | April 25 | Struck wall        | Trieste               | Plates-propeller          | Rytoner            | May 14   | Collision          | Beachy Head        | Sunk                    |
| Clan Keith                | May 6    | Fire               | Colombo               | Undamaged                 | Ryo Maru No. 2     | May 17   | Stranded           | Yoshioka Oshima    | Not stated              |
| City of Bristol           | May 8    | Fire               | Sydney                | Cargo                     | Rica               | May 19   | Struck pr'hd.      | Garstone           | Stem                    |
| Copperfield               | May 22   | Collision          | Not stated            | Bow                       | Regulus            | May 4    | Collision          | Portage Rover      | Bow plates              |
| Centurion                 | May 9    | Fire               | Toxteth Dock          | Cargo                     | Romanitza          | May 4    | Collision          | Genoa              | Slightly                |
| Chili                     | Mar. 27  | Collision          | Queen's Dock          | Not stated                | Rubislav           | May 5    | Collided wall      | Aberdeen           | Hawseppe                |
| Corunna                   | May 26   | Collision          | Welland Canal         | Shaft                     | Shamokin           | May 11   | Sank               | Scotland Lightship | Not stated              |
| City of Bagdad            | May 13   | Collision          | Whitehill Point       | Not stated                | Sommelskijk        | May 2    | Struck break-water | Algiers            | rudder and propeller    |
| Cristina                  | May 29   | Collision          | Rotterdam             | Damaged                   | Speed              | May 15   | Ashore             | Cape Brenton       | Not stated              |
| Dorothy P. Sarty          | May 13   | Collision          | Louise Basin          | Not stated                | Sabine Sun         | May 15   | Aground            | Bergen Point       | Floated                 |
| Darnley                   | May 9    | Explosion          | Gothenburg            | Not stated                | Saguenay Trader    | May 13   | Collision          | Louise Basin       | Not stated              |
| Dea                       | May 22   | Collision          | Not stated            | Not stated                | Steamer Edith      | May 13   | Collision          | Yarmouth           | Not stated              |
| Durban Maru               | May 16   | Collision          | Long Beach            | Port Bow                  | Suderoy            | May 13   | Collision          | Whitehill Point    | Not stated              |
| Dunard                    | May 18   | Ashore             | Roscoff               | Not stated                | Sunbeam            | May 14   | Sank               | Duncansby Head     | Not stated              |
| Dimitrios N. Bulgaria     | May 14   | Ashore             | Valserarne            | Forepeak                  | Spain Maru         | May 18   | Ashore             | Kinkasan           | Not stated              |
| Ebro                      | May 25   | Aground            | Puerto Plata har.     | Undam.                    | Solide             | June 7   | Collision          | Bremerhaven Rds.   | Sank                    |
| Emma Alexander            | May 16   | Sub. obj.          | Not stated            | prop. shaft               | Sant Agostino      | May 13   | Ashore             | Carcuretta         | Not stated              |
| Ekaterina Inglessi        | May 26   | Grounded           | Port Said             | Not stated                | Somerset           | May 19   | Disabled           | Tilbury            | Machinery-steering year |
| Eastern Knight            | May 13   | Aground            | New Orleans           | Floated                   | Sado               | May 12   | Collision          | Antwerp            | Not stated              |
| Elaase                    | May 6    | Collision          | Brunsbüttelkoog       | Not stated                | Solaas             | May 12   | Grounded           | Vesterskar         | Forepeak                |
| Frank D. Stout            | May 13   | Collision          | San Diego             | Bow                       | Selene             | May 7    | Explosion          | Yokohama           | Total loss              |
| Foxhound                  | May 14   | Collision          | Northfleet            | foundered                 | Silverbrook        | June 10  | Collision          | Deer Island        | Not stated              |
| Fenchurch                 | June 1   | Fire               | Not stated            | Not stated                | Skegness           | May 29   | Fire               | Perim              | Not stated              |
| Fidelitas                 | May 4    | Sub. object        | North Sea             | Leaking slightly          | Tokiwa Maru        | May 13   | Collision          | Kobe               | Stem-plates             |
| Gladys E. Bullen          | May 12   | Ashore             | Lansley               | Not stated                | Thordis            | May 7    | Fire               | Oslo               | Slight                  |
| Grete Jensen              | May 26   | Collision          | Montevideo            | Not stated                | Taiko Maru No. 2   | May 10   | Collision          | Not stated         | Badly                   |
| Gov. General Maurice Long | May 10   | Ashore             | Saigon                | Floated                   | Thomas Britt       | May      | Struck break-water | Port Arthur        | Plates                  |
| Gen. Wood                 | May 25   | Aground            | Lime Rock             | Floated                   | Tyrfjord           | May 26   | Fire               | Port Richmond      | Cargo                   |
| Glenlucce                 | May 13   | Stranded           | Fraserburgh Har-bour  | Not stated                | Thelma             | May 5    | Fire               | Pensacola          | Not stated              |
| Hans Jensen               | May 14   | Aground            | Whitehead Ledges      | Total loss                | Trebartha          | May 7    | Ashore             | Rabaul             | Tank                    |
| Hemland                   | May 2    | Collision          | Marseilles            | Bilge keel                | Union Hullera      | June 6   | Ashore             | Not stated         | Damaged                 |
| Huron                     | May 22   | Collision          | Saulte Ste Marie      | Plates                    | Vechtstroom        | May 23   | Collision          | Ipawich            | Not stated              |
| Hilton                    | May 20   | Aground            | Jersey Shore          | Floated                   | Virginia           | May 6    | Disabled           | Manitowoc          | Prop. blades            |
| Helen McIlvaine           | May 23   | Gale               | Chincoteague          | waterlogged beached       | Vira               | May 15   | Collision          | Liverpool          | Slight                  |
| Holland Maru              | May 18   | Collision          | Rotterdam             | Above water line          | Worrell Clarkson   | May 17   | Aground            | Algonac            | Floated                 |
| Hatteras                  | June 6   | Fire               | Hoboken               | Considerable              | West Jester        | May 21   | Ashore             | Thendune Island    | Floated                 |
| Ishpeming                 | May 22   | Collision          | Sault Ste Marie       | Slightly                  | Waukegan           | May 25   | Aground            | Ambrose Channel    | Floated                 |
| Idomeneus                 | May 18   | Fire               | Amsterdam             | Not stated                | Wahcondah          | May 26   | Collision          | Welland Canal      | Not stated              |
| Italy Maru                | May 9    | Fire               | New York              | Slight                    | W. R. Linn         | June 4   | Aground            | Mission Point      | Floated                 |
| J. W. Wonson              | May 19   | Fire               | Ellis Island          | Not stated                | Welland County     | May 23   | Fire               | Montreal           | Considerable            |
| James L. Maloy            | May 18   | Went on rocks      | Kennebec River        | Leaking slightly          | Wakana             | May 27   | Fire               | Nanaimo            | Not stated              |
|                           |          |                    |                       |                           | William A. Reiss   | June 12  | Struck pier        | Soo                | Plate                   |
|                           |          |                    |                       |                           | West Saginaw       | June 9   | Struck obstr.      | Nantucket Shoals   | Ashore-floated          |
|                           |          |                    |                       |                           | Yataka Maru        | May 9    | Ashore             | Sasebo             | Not stated              |
|                           |          |                    |                       |                           | York               | May 4    | Collision          | Bordeaux           | Slight                  |
|                           |          |                    |                       |                           | Zulia              | May 29   | Ashore             | Los Roques         | Not stated              |



# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 435       | 1,820,544   | 538        | 2,215,561   |
| April        | 434       | 1,796,849   | 528        | 2,093,444   |
| March        | 472       | 1,899,036   | 517        | 2,032,263   |
| February     | 398       | 1,680,392   | 449        | 1,867,624   |
| January      | 387       | 1,556,853   | 457        | 1,869,323   |
| December     | 423       | 1,673,567   | 470        | 1,822,485   |
| November     | 392       | 1,709,329   | 456        | 1,921,088   |
| October      | 459       | 1,915,122   | 540        | 2,332,411   |
| September    | 476       | 2,072,324   | 483        | 2,026,172   |
| August, 1924 | 406       | 1,650,694   | 479        | 2,018,621   |

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)  
(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 87        | 209,866     | 63         | 155,359     |
| April        | 102       | 248,546     | 67         | 182,335     |
| March        | 96        | 238,863     | 58         | 163,257     |
| February     | 93        | 238,802     | 55         | 154,033     |
| January      | 77        | 224,574     | 57         | 180,331     |
| December     | 71        | 179,994     | 61         | 188,667     |
| November     | 85        | 220,852     | 59         | 174,470     |
| October      | 75        | 171,465     | 52         | 137,653     |
| September    | 82        | 192,900     | 66         | 161,925     |
| August, 1924 | 86        | 192,777     | 57         | 138,280     |

### Boston

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 118       | 296,551     | 93         | 205,291     |
| April        | 99        | 224,275     | 82         | 179,010     |
| March        | 94        | 295,292     | 54         | 159,928     |
| February     | 85        | 278,024     | 46         | 121,141     |
| January      | 78        | 205,327     | 34         | 80,480      |
| December     | 100       | 278,347     | 52         | 125,332     |
| November     | 97        | 310,423     | 55         | 149,777     |
| October      | 128       | 327,931     | 82         | 179,963     |
| September    | 113       | 308,352     | 75         | 183,286     |
| August, 1924 | 120       | 298,661     | 91         | 176,563     |

### Portland, Me.

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 23        | 42,242      | 27         | 47,648      |
| April        | 24        | 53,326      | 30         | 86,338      |
| March        | 29        | 96,263      | 27         | 88,408      |
| February     | 21        | 72,642      | 24         | 83,393      |
| January      | 23        | 65,910      | 23         | 65,218      |
| December     | 30        | 86,088      | 29         | 78,076      |
| November     | 15        | 26,281      | 12         | 19,616      |
| October      | 11        | 12,506      | 15         | 24,551      |
| September    | 19        | 42,910      | 16         | 34,813      |
| August, 1924 | 24        | 52,400      | 25         | 54,739      |

### Providence

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 15        | 40,589      | 9          | 27,016      |
| April        | 8         | 26,506      | 9          | 34,277      |
| March        | 11        | 43,757      | 7          | 28,136      |
| February     | 12        | 37,995      | 13         | 41,669      |
| January      | 12        | 38,395      | 11         | 39,717      |
| December     | 9         | 36,259      | 11         | 40,624      |
| November     | 11        | 45,232      | 8          | 37,967      |
| October      | 6         | 16,071      | 8          | 14,522      |
| September    | 7         | 20,038      | 5          | 21,937      |
| August, 1924 | 7         | 21,863      | 5          | 18,916      |

### Portland, Oreg.

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 11        | 47,728      | 20         | 77,847      |
| April        | 17        | 68,981      | 19         | 80,425      |
| March        | 15        | 56,297      | 26         | 90,025      |
| February     | 13        | 51,236      | 21         | 81,438      |
| January      | 19        | 71,880      | 23         | 86,518      |
| December     | 17        | 64,756      | 29         | 115,186     |
| November     | 27        | 105,529     | 36         | 137,696     |
| October      | 24        | 92,077      | 43         | 159,017     |
| September    | 26        | 97,923      | 36         | 128,205     |
| August, 1924 | 22        | 78,722      | 31         | 118,526     |

### Baltimore

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 118       | 341,793     | 129        | 379,956     |
| April        | 125       | 363,563     | 133        | 394,223     |
| March        | 115       | 344,937     | 112        | 322,530     |
| February     | 103       | 323,817     | 79         | 250,369     |
| January      | 90        | 282,299     | 79         | 250,369     |
| December     | 105       | 326,907     | 99         | 291,043     |
| November     | 105       | 325,934     | 97         | 305,601     |
| October      | 101       | 297,822     | 118        | 355,500     |
| September    | 94        | 282,861     | 100        | 289,324     |
| August, 1924 | 90        | 278,346     | 105        | 329,470     |

### Norfolk and Newport News

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 63        | 159,186     | 140        | 376,657     |
| April        | 32        | 84,936      | 112        | 308,744     |
| March        | 26        | 78,427      | 100        | 287,061     |
| February     | 14        | 40,669      | 66         | 186,031     |
| January      | 39        | 95,259      | 88         | 262,371     |
| December     | 41        | 108,930     | 93         | 274,576     |
| November     | 31        | 89,647      | 70         | 205,671     |
| October      | 39        | 95,375      | 71         | 227,247     |
| September    | 30        | 83,640      | 80         | 251,466     |
| August, 1924 | 27        | 80,388      | 94         | 281,959     |

### Savannah

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 27        | 71,946      | 22         | 65,895      |
| April        | 39        | 106,938     | 36         | 69,574      |
| March        | ..        | ..          | ..         | ..          |
| February     | 40        | 101,408     | 87         | 91,185      |
| January      | 33        | 90,730      | 33         | 91,062      |
| December     | 40        | 109,496     | 40         | 113,538     |
| November     | 36        | 109,623     | 39         | 115,168     |
| October      | 35        | 101,689     | 31         | 93,380      |
| September    | 34        | 94,422      | 36         | 100,903     |
| August, 1924 | 25        | 71,138      | 25         | 68,527      |

### Key West

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 104       | 119,502     | 103        | 119,729     |
| April        | 85        | 103,116     | 84         | 102,860     |
| March        | 88        | 105,841     | 87         | 115,285     |
| February     | 77        | 94,214      | 77         | 96,890      |
| January      | 75        | 100,350     | 71         | 96,815      |
| December     | 77        | 90,316      | 72         | 83,706      |
| November     | 90        | 101,387     | 84         | 102,408     |
| October      | 75        | 92,284      | 72         | 89,364      |
| September    | 84        | 103,588     | 83         | 98,063      |
| August, 1924 | 81        | 93,805      | 82         | 94,682      |

### Mobile

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 95        | 193,841     | 89         | 172,419     |
| April        | 92        | 190,808     | 91         | 180,993     |
| March        | 97        | 215,386     | 91         | 197,950     |
| February     | 93        | 192,722     | 82         | 184,575     |
| January      | 84        | 192,722     | 82         | 184,575     |
| December     | 84        | 165,352     | 80         | 165,325     |
| November     | 80        | 169,400     | 73         | 156,327     |
| September    | 80        | 176,416     | 71         | 160,717     |
| August, 1924 | 75        | 145,597     | 73         | 147,681     |

### Seattle

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 28        | 132,043     | 39         | 138,570     |
| April        | 41        | 156,761     | 42         | 173,116     |
| March        | 39        | 168,567     | 39         | 157,419     |
| February     | 31        | 124,870     | 30         | 129,648     |
| January      | 39        | 169,458     | 36         | 145,663     |
| December     | 36        | 164,991     | 45         | 181,849     |
| November     | 40        | 203,891     | 45         | 194,766     |
| October      | 45        | 175,725     | 48         | 198,037     |
| September    | 48        | 193,049     | 41         | 168,594     |
| August, 1924 | 35        | 149,904     | 41         | 179,108     |

### New Orleans

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 256       | 666,503     | 276        | 724,621     |
| April        | 266       | 692,569     | 283        | 727,156     |
| March        | 294       | 774,343     | 280        | 738,445     |
| February     | 178       | 486,186     | 170        | 488,676     |
| January      | 253       | 731,964     | 264        | 738,164     |
| December     | 277       | 776,064     | 257        | 735,100     |
| November     | 247       | 713,667     | 250        | 735,984     |
| October      | 267       | 757,738     | 279        | 768,630     |
| September    | 248       | 677,631     | 237        | 640,301     |
| August, 1924 | 247       | 645,151     | 252        | 676,881     |

### Houston

(Cargo tonnage)

| Month          | Entrances |             | Clearances |             |
|----------------|-----------|-------------|------------|-------------|
|                | No. ships | Net tonnage | No. ships  | Net tonnage |
| December, 1924 | 99        | 39,568      | 102        | 154,455     |
| November       | 101       | 36,016      | 95         | 233,436     |
| October        | ..        | 34,945      | ..         | 192,986     |
| September      | 94        | 50,710      | 90         | 171,229     |
| August         | 82        | 66,665      | 84         | 114,966     |
| July           | 59        | 77,062      | 57         | 288,417     |
| June           | 65        | 74,794      | 72         | 336,312     |
| May            | 72        | 64,937      | 71         | 362,350     |
| April          | 78        | 76,466      | 73         | 337,757     |
| March, 1924    | 88        | 113,064     | 87         | 411,715     |

### Galveston

(Exclusive of Domestic)

| Month          | Entrances |             | Clearances |             |
|----------------|-----------|-------------|------------|-------------|
|                | No. ships | Net tonnage | No. ships  | Net tonnage |
| February, 1925 | 56        | 140,065     | 90         | 277,751     |
| January        | 67        | 188,781     | 110        | 337,882     |
| December       | 63        | 190,311     | 107        | 341,705     |
| November       | 100       | 342,472     | 126        | 408,277     |
| October        | 77        | 238,918     | 120        | 386,412     |
| September      | 65        | 189,293     | 112        | 350,173     |
| August         | 61        | 177,941     | 87         | 268,774     |
| July           | 52        | 147,279     | 58         | 172,847     |
| June           | 41        | 133,079     | 55         | 170,181     |
| May, 1924      | 58        | 148,758     | 69         | 200,846     |

### Los Angeles

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 168       | 363,848     | 138        | 298,066     |
| April        | 153       | 316,134     | 137        | 262,631     |
| March        | 131       | 359,572     | 113        | 281,149     |
| February     | 162       | 284,988     | 127        | 237,474     |
| January      | 127       | 312,248     | 115        | 259,345     |
| December     | 153       | 343,151     | 118        | 276,302     |
| November     | 195       | 310,425     | 121        | 223,778     |
| October      | 156       | 290,697     | 184        | 285,871     |
| September    | 128       | 333,989     | 136        | 277,479     |
| August, 1924 | 96        | 301,744     | 76         | 239,441     |

### San Francisco

(Exclusive of Domestic)

| Month        | Entrances |             | Clearances |             |
|--------------|-----------|-------------|------------|-------------|
|              | No. ships | Net tonnage | No. ships  | Net tonnage |
| May, 1925    | 163       | 567,001     | 145        | 554,483     |
| April        | 134       | 472,879     | 157        | 517,654     |
| March        | 129       | 542,912     | 139        | 669,367     |
| February     | 117       | 443,749     | 124        | 454,699     |
| January      | 119       | 446,477     | 126        | 454,303     |
| December     | 59        | 231,805     | 83         | 314,541     |
| November     | 73        | 251,022     | 82         | 318,615     |
| October      | 64        | 234,894     | 72         | 243,898     |
| September    | 67        | 225,161     | 65         | 220,507     |
| August, 1924 | 61        | 219,133     | 65         | 230,938     |

### Port Arthur

(Exclusive of Domestic)

| Month              | —Entrances— |             | —Clearances— |             |
|--------------------|-------------|-------------|--------------|-------------|
|                    | No. ships   | Net tonnage | No. ships    | Net tonnage |
| May, 1925 .....    | 28          | 105,707     | 42           | 122,871     |
| April .....        | 33          | 100,595     | 43           | 116,485     |
| March .....        | 38          | 95,977      | 45           | 110,218     |
| February .....     | 32          | 95,537      | 19           | 44,376      |
| January .....      | 34          | 100,449     | 33           | 85,261      |
| December .....     | 34          | 101,609     | 41           | 122,869     |
| November .....     | 32          | 107,737     | 32           | 90,726      |
| October .....      | 47          | 144,763     | 54           | 159,034     |
| September .....    | 42          | 120,636     | 38           | 105,700     |
| August, 1924 ..... | 42          | 116,626     | 32           | 89,694      |



# What the British Are Doing

Short Surveys of Important Activities in Maritime  
Centers of Island Empire

**C**ONTRACTS to the value of £3,500,000 have been placed in Great Britain by the Australian government. They comprise two 10,000-ton cruisers to be built by John Brown & Co. Ltd., Clydebank. The cost of the hull and machinery for each ship is over £1,000,000. Vickers Ltd., and Armstrong Whitworth & Co. Ltd., are to supply the main armaments for one ship. Further orders for armaments are shortly to be placed. The armor contracts worth £100,000 have been divided between William Beardmore & Co. Ltd., Cammell Laird & Co. Ltd. and David Colville & Sons Ltd. Vickers Ltd. have a contract for gun mountings totaling £350,000 and another of £300,000 in connection with the building of two submarines.

\* \* \*

**T**HE four months record of ship-building launches to the end of April was the highest in the history of the Clyde, but as explained at the time, this was mainly due to the coincidence of a series of big launches. The month of May failed to maintain the standard, as only sixteen vessels were launched, representing 22,000 tons and the total for the five months is therefore behind the record for the

period by about 34,500 tons. Very little new work has been booked and small totals are anticipated for the next few months.

\* \* \*

**SIR ARTHUR SUTHERLAND**, chairman of the Tyne-Tees Shipping Co., speaking on the occasion of the launch at Hebburn-on-Tyne of the steamer **NEWMINSTER** said the company, although ships could be built more cheaply on the Continent, preferred to place orders on Tyneside because they made their money there. They were handicapped by the fact that high costs of labor and heavy loading charges were more than present freights warranted. Costs would have to be kept down if workmen and employers wished to continue doing trade.

\* \* \*

**A**NOTHER addition to the fleet of the Orient line will be made by the launch by Vickers Ltd., Barrow-in-Furness on June 9 of the twin-screw turbine liner **OTRANTO**. This vessel which will be of 20,000 tons gross, has been specially designed for the mail services to Australia. Mrs. Amery, wife of the Secretary for the Colonies, will perform the opening ceremony. The

**OTRANTO** is, in general designs, a sister-ship to the Barrow-built **ORAMA**, launched in May of last year.

\* \* \*

**HARLAND & WOLFF**, Belfast are to carry out extensive alterations on the Royal Mail Steam Packet Co.'s motor ship **LOCHGOI**. This is chiefly in connection with refrigerating space. There are only nine vessels on the stocks at Belfast, while there are 27 building berths. Two-thirds of the berths are therefore empty.

\* \* \*

**T**HE rising tide was utilized by the London, Midland & Scottish Railway at Grangemouth docks for removing and repairing six giant lock gates weighing 160 tons each. The gates control the entrance to the docks from the sea, measuring 47 feet by 35 feet, and vary from 2 feet to 6 feet 6 inches in thickness. They were removed, repaired and replaced without interfering with the ordinary working operations. The gates which are hollow were filled with water and then emptied and made watertight. The rising tide floated them off their bearings when they were towed to a graving dock. After repairing they were towed back and sunk into place.

## What's Doing Around The Lakes

**P**OLITICS came to the front again in Chicago's lake water diversion difficulty when Gov. Len Small, of Illinois, early in June threatened to veto the second drainage district bill unless the sanitary district helped to pass the Deneen-Small election bills.

The drainage district bill increases the bonding power of the district by some \$19,000,000 in order to make possible construction of the sewage disposal plants ordered by Secretary of War Weeks. These plants must be completed in 5 years, when the present flow of 10,000 cubic feet per minute from Lake Michigan must be decreased.

Chief of the bills Gov. Small insisted

be passed in return for his drainage district bill approval is one forcing circuit and superior court judges of Cook county (Chicago) to be subjected to primaries. It is an attempt of the Small forces to obtain control of the south park board and its lucrative "plums." The judges of these courts name the board. The plea of the sanitary district commissioners that they are not engaged in politics has borne little weight at the state capitol.

\* \* \*

**A**S THE Great Lakes-St. Lawrence Tidewater association went into session at Michigan City, Ind., on May 21, the Cornish steamer **AGGA**, with 1439 tons of clay from Fowet, Cornwall, for Kalamazoo, Mich., docked

at Michigan City. The **AGGA** picked up at Chicago and Duluth a miscellaneous cargo for British ports.

\* \* \*

**L**AKE CALUMET, which is now a breeding place for mosquitos and mud turtles at Chicago's southerly city limits, just in from Lake Michigan, is finally to be converted into a harbor. Mayor Dever, of Chicago, on June 8 signed the bill permitting the Nickel Plate railroad to develop the harbor in return for the right to encircle it with a belt line.

Lake Calumet is now roughly two miles long, one mile wide and three feet deep. A 200-foot channel is to be dredged from Calumet river to the lake. The channel in the lake is to be



1500 feet wide. Piers are to be constructed, according to present plans, and with the building-up of the Calumet industrial district and the completion of the Gulf-to-Lakes waterway a great terminal is hoped for. The city proposes to build a sample dock. The expenditure of the Nickel Plate railroad is estimated at \$600,000.

\* \* \*

**L**AKE MICHIGAN largely escaped the storm and barometric disturbance which on May 22 accompanied what amounted to a tidal wave on Lake Huron. At Rockport, Mich., near Alpena, the water rose 4 feet and then fell 7. At Calcite the variation was 6 feet. On the morning of May

23 the water front line at Alpena was 250 feet further out beyond the previous low water line.

\* \* \*

**C**APT. WILLIAM BAXTER, one of the old time Chicago vessel men, was buried at Goderich, Ont., May 19. Once during a tugboat men's strike he took a large freighter up the Chicago river under its own power. His last command was the SONORA.

\* \* \*

**T**HE Peninsula & Northern Navigation Co., operating the steamers UNITED STATES and ARIZONA in daily service from Milwaukee to Grand Haven and Muskegon, Mich., is

now using its new dock at Milwaukee between the East Water and Broadway bridges.

\* \* \*

**A**S A Chicago policeman was about to serve a warrant upon the master of the NORONIC, of the Canada Steamship Lines, for discharging sewage and refuse at the Chicago municipal pier on June 11 the steamer slipped out. Chicago forbids the discharge of refuse, except in the Chicago river, for fear of contamination of its city water, which is not filtered. The Detroit & Cleveland Navigation Co. is installing retention tanks on its steamers on the Chicago-Mackinac-Detroit run to avoid trouble.

## Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to June 5, 1925 on Future Loadings

NOTE: FREIGHT RATES STEADY WITH BUSINESS QUIET

| New York to                | Grain                | Provisions      | Cotton (H. D.)  | Flour           | General cargo    | Finished steel | REMARKS         | From North Pacific                 | Lumber           |
|----------------------------|----------------------|-----------------|-----------------|-----------------|------------------|----------------|-----------------|------------------------------------|------------------|
|                            | 1s 6d                |                 | \$0.30 to 0.45  |                 | cu. ft. 100 lbs. |                | Freight Offered | Ports to                           | Per m. ft.       |
| Liverpool...               | 1s 6d                | \$0.50          | 0.30 to 0.45    | 0.27            | \$0.40 0.75      | \$7.00T        | Very quiet      | San Francisco.....                 | \$5.00           |
| London.....                | 1s 6d                | 0.50            | 0.30 to 0.45    | 0.27            | 0.40 0.75        | 7.00T          | Very quiet      | South California.....              | 5.00 to 5.50     |
| Oslo.....                  | \$0.16               | 0.45            | 0.40            | 0.27            | 0.42 0.85        | 7.00T          | Very poor       | Hawaiian Islands.....              | 10.00 to 12.00   |
| Copenhagen....             | 0.16                 | 0.45            | 0.50            | 0.26            | 0.42 0.85        | 7.00T          | Very poor       | New Zealand.....                   | 17.00 to 20.00   |
| Hamburg.....               | 0.11                 | 0.35            | 0.35            | 0.18            | 0.37 0.75        | 8.00T          | Fair            | Sydney.....                        | 14.00 to 15.00   |
| Bremen.....                | 0.11                 | 0.35            | 0.40            | 0.18            | 0.37 0.75        | 8.00T          | Very poor       | Melbourne-Adelaide....             | 15.00 to 16.00   |
| Rotterdam and Amsterdam... | 0.13                 | 0.32 1/2        | 0.40            | 0.20            | 0.35 0.70        | 7.50T          | Fair            | Oriental Ports.....                | 6.00 to 7.00     |
| Antwerp.....               | 0.13                 | 0.32 1/2        | 0.35            | 0.20            | 0.35 0.70        | 7.50T          | Fair            | Oriental Ports (logs)....          | 10.00 to 12.00   |
| Havre.....                 | 0.11                 | 0.50            | 0.35            | 0.27 1/2        | 0.40 0.75        | 8.00T          | Very poor       | Peru-Chile.....                    | 11.00 to 13.00   |
| Bordeaux.....              | 0.11                 | 0.50            | 0.35            | 0.27 1/2        | 0.40 0.75        | 8.00T          | Very poor       | South Africa.....                  | 17.00 to 18.00   |
| Barcelona.....             | 0.18                 | 12.00T          | 0.30            | 10.00           | —12.00T—         | 10.00T         | Very poor       | Cuba.....                          | 14.00 to 16.00   |
| Lisbon.....                | 0.20                 | 0.65            | 0.40            | 7.00T           | —20.00T—         | 7.00T          | Fair            | United Kingdom.....                | 80s to 90s       |
| Marseilles.....            | 0.15                 | 0.55            | 0.30            | 6.00            | —20.00T—         | 5.00T          | Very slow       | United Kingdom (ties)...           | 70s to 80s       |
| Genoa.....                 | 0.16                 | 12.50           | 0.40            | 8.25            | —20.00T—         | 10.00T         | Very slow       | Baltimore-Boston range..           | \$14.00 to 15.00 |
| Naples.....                | 0.16                 | 12.50           | 0.40            | 8.25            | —20.00T—         | 10.00T         | Fair            | Baltimore-Boston range (ties)..... | Not quoted       |
| Constantinople..           | 0.27                 | 17.00T          | 0.75            | 0.32 1/2        | —20.00T—         | 9.00T          | Fair            | Buenos Aires.....                  | 14.00            |
| Alexandria.....            | 0.20                 | 17.00T          | 0.75            | 0.32 1/2        | —20.00T—         | 9.00T          | Poor            | Flour and Wheat                    |                  |
| Algiers.....               | 0.20                 | 0.75            | 0.75            | 0.40            | —20.00T—         | 7.00T          | Very Slow       | U. K. and Continent                |                  |
| Dakar.....                 | 15.00                | 15.00           | 12.50T          | 12.50T          | —21.00T—         | 10.50T         | Fairly well     | (gross ton).....                   | 35s to 37s 6d    |
| Capetown.....              | 9.00T                | 16.00           | 10.00T          | 10.00T          | —16.00T—         | 11.00T         | Fair            |                                    |                  |
| Buenos Aires...            | 18.00 to 20.00T      | 18.00 to 20.00T | 18.00 to 20.00T | 18.00 to 20.00T | 18.00 to 20.00T  | 8.00 to 8.80T  | Poor            |                                    |                  |
| **Rio de Janeiro           | 21.50 to 23.50T      | 21.50 to 23.50T | 11.25 to 12.50T | 19.00 to 21.00T | 19.00 to 21.00T  | 7.00 to 7.70T  | Poor            |                                    |                  |
| Pernambuco.....            | 22.00T               | 22.00T          | 9.50T           | —22.00T—        | —22.00T—         | 9.70T          | Poor            |                                    |                  |
| Havana.....                | 0.22 1/2 to 0.27 1/2 | 0.42 1/2*       | 0.22 1/2*       | 0.54*           | 1.08*            | 0.20*          | Fair            |                                    |                  |
| Vera Cruz.....             | 0.25                 | 0.40            | 0.45            | 0.25            | 0.52 1/2         | 1.05           | 0.30 to 0.35    | Fair                               |                  |
| Valparaiso.....            | 1.07                 | 1.07            | 0.70            | 0.45            | 0.80             | 10.00T         | Slow            |                                    |                  |
| San Francisco...           | 0.40 to 0.70         | 0.40 to 0.70    | 0.50 to 1.10    | 2.50            | 0.55 to 1.00     | Good           |                 |                                    |                  |
| Sydney.....                | 18.00T               | 2.50            | 18.00T          | 18.00-24.00T    | 9.00-12.00T      | Very poor      |                 |                                    |                  |
| Calcutta.....              | 16.00T               | 0.60            | 12.00T          | —16.00T—        | 10.00T           | Very poor      |                 |                                    |                  |

T—Ton. †Per quarter of 480 lbs. ‡Landed. ††Heavy products limited in length. \*Extra charge for wharfage.  
\*\*Plus \$1.00 surcharge on all rates to Rio de Janeiro on account of congestion.

### Principal Rates To and From United Kingdom

|                                         | s      | d |                                                           | s  | d |
|-----------------------------------------|--------|---|-----------------------------------------------------------|----|---|
| Grain, River Plate to United Kingdom... | 16     | 0 | Pig iron, United Kingdom to New York or Philadelphia..... | 14 | 0 |
| Coal, South Wales to Near East.....     | 10     | 9 | Iron ore, Bilbao to Cardiff.....                          | 5  | 9 |
| Coal, United Kingdom to Buenos Aires..  | 15     | 3 | Iron ore, Huelva to Phila. or Balto.....                  | 10 | 0 |
| Manganese Ore, Poti to Philadelphia.... | \$3.25 |   |                                                           |    |   |

### Bunker Prices

| At New York             |                     |                       |  | At Philadelphia            |                     |                       |  | Other Ports                                      |        |
|-------------------------|---------------------|-----------------------|--|----------------------------|---------------------|-----------------------|--|--------------------------------------------------|--------|
| Coal alongside per ton  | Fuel oil per barrel | Diesel oil per gallon |  | Coal trim. in bunk per ton | Fuel oil per barrel | Diesel oil per gallon |  |                                                  |        |
| July 21, 1924 4.50@6.25 | 1.81 1/2            | 5.15@5.65             |  | July 21, 1924 4.85@6.00    | 1.945               | 5.40                  |  | Boston, coal, per ton...                         | \$6.59 |
| Dec. 22..... 5.25@6.05  | 1.86 1/2            | 5.15@5.50c            |  | Dec. 22..... 5.25@5.80     | 1.865               | 5.15c                 |  | Boston, oil, f. a. s., per barrel.....           | \$1.77 |
| Jan. 20..... 5.25@6.05  | 1.86 1/2            | 5.50c                 |  | Jan. 20..... 5.25@5.80     | 2.06                | 5.41@5.65             |  | Hampton Roads, coal, per ton, f.o.b., piers..... | 4.50   |
| Feb. 18..... 5.25@6.05  | 1.86 1/2            | 5.50c                 |  | Feb. 18..... 5.25@5.80     | 2.10@2.25           | 5.9@6.9               |  | Cardiff, coal, per ton 15s 0d                    |        |
| Mar. 17..... 5.00@6.25  | 1.86 1/2            | 6.00@6.50c            |  | Mar. 17..... 5.05@5.82     | 2.06 1/2@2.31       | 6.10@6.15             |  | London, coal, per ton 22s 6d                     |        |
| April 20..... 5.00@6.00 | 1.86 1/2            | 5.50                  |  | April 20..... 5.00@6.00    | 1.95@2.06 1/2       | 5.65 1/2              |  | Antwerp, coal, per ton 23s 1/2d                  |        |
| May 18..... 5.00@6.00   | 1.75                | 5.48                  |  | May 18..... 5.00@5.80      | 1.85@1.91 1/2       | 5.41@5.64             |  |                                                  |        |
| June 4, 1925 5.00@6.00  | 1.86 1/2            | 5.50                  |  | June 4, 1925 4.90@5.50     | 1.86 1/2            | 5.50                  |  |                                                  |        |



# New Trade Publications

**RECORDING THERMOMETERS**—Catalog No. 1303 just published by the Bristol Co., Waterbury, Conn., to supersede catalog No. 1302 discusses gas filled thermometers for temperatures between 60 degrees below zero and 1000 degrees Fahr. The book, which is illustrated and of 56 pages, shows the variety of scale ranges and mechanical fittings which make the thermometers adaptable for wide uses in industrial plants.

**WELDING TORCHES**—An automatic shut-off welding torch is described in a folder of the Bastian-Blessing Co., Chicago. The torch has a trigger for turning off the gas and is so arranged that once the torch is adjusted, it may be turned off and relighted at will without affecting the gas mixture. These torches may be had separately or in complete outfits.

**SYNCHRONOUS MOTOR STARTERS**—Bulletin No. 799 of the Electric Machinery Mfg. Co., Minneapolis, describes and illustrates automatic starters for synchronous motors. Since the self starting synchronous motor is of comparatively recent development, this bulletin

explains the underlying principles of operation and suggests the proper type of starting equipment to be used for various installations. Automatic starters are of two classes, namely, full voltage starters and reduced voltage starters. Details of both are given.

**YOKE RIVETERS**—Another of its series of booklets on riveters of various types for many uses has been issued by the Hanna Engineering Works, Chicago, describing its line. Details of construction and operation and engineering data are shown and the range of work for each device is given.

**WELDING AND CUTTING EQUIPMENT**—Various types of acetylene generators are described and illustrated in a 48-page catalog published by the Oxweld Acetylene Co. Chicago. Other welding and cutting equipment is described, including blowpipes, both heating and cutting, regulators, gages, manifolds, decarbonizing outfits, hose connections, tables, trucks, etc.

**SHIP REPAIRS**—A description of one of Boston's largest and most completely equipped ship repair plants is given in a bulletin dis-

tributed by the Atlantic Works. This company has been in the shipbuilding and ship repairing business for 71 years. The facilities of the company are described by text and illustrations, emphasis being placed on its drydock facilities which include floating and railway drydocks from 500 to 8000 tons capacity. The latter is the only large floating drydock in the immediate port of Boston.

**DRILLS**—A pamphlet of the Cleveland Twist Drill Co., Cleveland, gives full details of speed and feed tests made at the recent American Railway association convention at Atlantic City. World's drilling records for cast iron and machinery steel were established.

**COMBUSTION CONTROL**—Carrick Engineering Co., Chicago, manufacturer of boiler plant equipment, has described thoroughly the various methods and systems of automatic control of combustion, in a 32-page treatise recently issued. This booklet analyzes the conditions and problems presented in co-ordinating supply of steam with the demand, and illustrates the discussion with many charts and graphs. In a 16-page bulletin enclosed in the same binder, the Carrick company publishes complete specifications together with diagrams and list of equipment for the 33 methods of automatically controlling boiler room equipment. This bulletin primarily is for consulting and designing engineers. Complete, authentic and concise tables and information are presented in accessible form.

## Business News for the Marine Trade

Ellis Transportation Co., New York, has been incorporated with 200 shares of common stock no par value to conduct a dredging business by E. Bijou, L. A. Lessing and L. J. Stokes. P. F. Farley, 27 William street, is attorney.

Hacker & Fermann Inc., Detroit, has been incorporated with \$10,000 capital to do a general brokerage and insurance of boats, hydroplanes, engines, motors and parts by William E. Fermann, Evadne J. Fermann and John L. Hacker, 1183 Philip street, Detroit.

Illinois Dredging & Construction Co., 5 North LaSalle street, Chicago, has been incorporated with \$50,000 capital to engage in general contracting business, specializing in waterside work, by M. W. Whittemore, C. A. Spenny and F. I. Pease.

Narragansett Shipbuilding Co., Portsmouth, R. I., suffered partial destruction of its plant and yards by fire, May 21.

Huff, Daland & Co., Ogdensburg, N. Y., manufacturers of airplanes and parts, have bought a portion of the former shipyard of the Merchants Shipbuilding Corp., Bristol, Pa., about 30 acres, and will establish a plant there.

Morris Levinson and associates, Newburgh, N. Y., have bought the former plant of the Pendleton Shipyards, Mystic, Conn., which was devoted to the construction of wooden vessels. Their purpose has not been announced.

The city council of Port Arthur, Tex., is seeking two 50,000-gallons per minute and one 20,000 gallons per minute motor driven pumping units for drainage service.

Chicago Dredging Co., 5 North LaSalle street, Chicago, has been incorporated to conduct a land and water contracting business with \$50,000 capital by Myron W. Whittemore, Charles A. Spenny and Frederick I. Pease.

Myron W. Whittemore, 5 North LaSalle street, is correspondent.

The dominion government at Quebec appropriated \$5,000,000 for the improvement of Quebec harbor.

University Travel association has been formed at New York with \$5000 capital to conduct a navigation business, by A. J. McIntosh, M. Anderson and F. J. Fulton, with W. S. Newhouse, 92 William street, as attorney.

Doric Nautical Corp., New York, has been incorporated with \$10,000 capital, to maintain a maritime business with F. R. Still, F. Berg and C. F. Chapman as incorporators and J. McK. Wright, 80 Maiden Lane, New York, as attorney.

Rafael DeCastillo & Co. Corp. has been incorporated for \$500,000 at New York to conduct an import and export business, with R. and R. C. and H. E. DeCastillo as incorporators and J. L. Robinson, 2 Rector street, as attorney.

Purdy Boat Co., Port Washington, N. Y., has been formed with \$50,000 capitalization, to manufacture and deal in motors, by M. G. Herold, D. B. Vail and W. B. Quigley. Baldwin, Hutchins & Todd, 120 Broadway, New York, are attorneys.

Gulf Transport & Trading Co. has been incorporated under Delaware charter to run ships from Houston, Tex., to Gulf and Atlantic ports. The company has a capitalization of \$200,000 and was incorporated by J. W. Davis, J. H. Reynolds and L. M. Reynolds of Houston.

Edward P. Farley & Co., Wilmington, Del., have been incorporated to aid in development of commerce by transportation on ships of the merchants marine, both domestic and foreign. The company has \$2,000,000 capital.

The Houston Towing Co. has been organized at Houston, Tex., to buy the D. W. Ryan Towboat Co. W. D. Haden is president

of the new company. W. A. Wansley, vice president, and J. R. Guyon, secretary and treasurer.

Suderman & Young Towing Co., Galveston, Tex., has been incorporated to take over the tugs formerly owned by Suderman & Young, Inc. The latter company will continue in the stevedoring business. Charles and A. D. Suderman and John Young are officers of the new company.

Sound Boat & Engineering Co., Inc., Colman Dock, Seattle, has been organized to build and repair ships ranging from 300-foot length to transoceanic boats. J. Winslow is one of the officers of the new company.

The Unit Navigation Co. has leased the large dock on the Mississippi river at St. Louis from the Inland Waterways Corp. The Unit Navigation was organized recently with \$10,000,000 capital, and operates under the name of the Sunco System.

Bethlehem Shipbuilding Corp., Wilmington, Del., plans installation of additional equipment at its Harlan shipyard.

Edward Hinkey has bought 12 acres on Big Island, Sandusky, O., plans to build on it a shipyard. Two docks 600 feet long will be constructed.

Decatur Passenger Boat Co., 208 Millikin building, Decatur, Ill., has been incorporated with \$60,000 capital to build pleasure and passenger boats by John V. Walker, Carrie Walker Raymond Elliott, Lloyd Elliott and Fred J. Brook.

Universal Travel Bureau, 196 Main street, Brockton, Mass., with Albert E. Wood, manager, is prepared to offer travel service in connection with steamship passage on all lines to every part of the world. Also for around the world cruises, and for independent and conducted all-expense tours to Europe, the Mediterranean, West Indies, Bermuda and South America.